THE STORY OF BRICK

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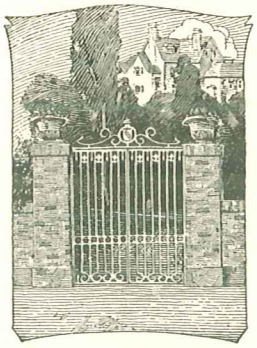
Detail of Garden, Pasadena, Calif. Myron Hunt, Architect
Walks, stairways, and terraces fittingly treated with blended, rich-toned brick

THE STORY OF BRICK

The Permanence, Beauty, and Economy of the Face Brick House



THIRD EDITION

Price Fifty Cents

AMERICAN FACE BRICK ASSOCIATION

130 NORTH WELLS STREET

CHICAGO

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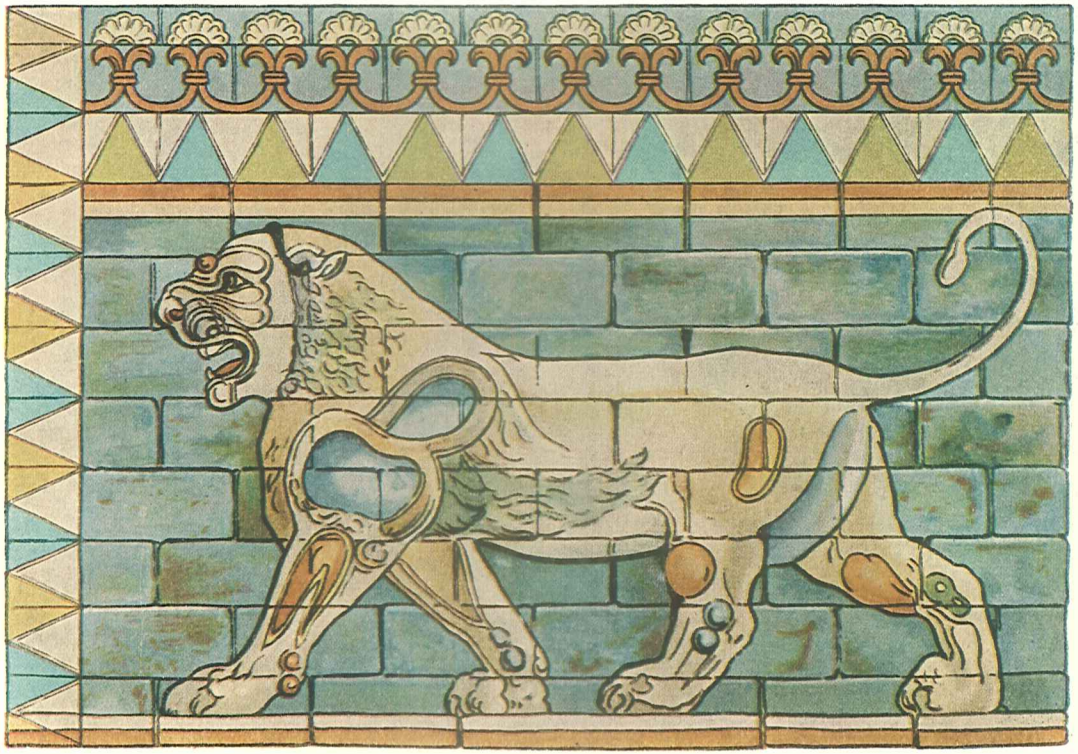


The Lion of Susa, Ancient Persia
After Babylonian colored brickwork

Chaldean Pottery

Burnt Clay Cylinder Recording the Capture of Babylon by Cyrus, 538 B. C.

Chaldean Pottery

Brick in History

IF we possessed the story-telling magic of Sir Walter or of Dumas, the elder, we could write a best seller on the subject of brick, which most people think of as very commonplace. The extraordinary material out of which brick are made, their own remote antiquity, long, honorable history, and wonderful development for architectural uses in modern times could be woven into a most fascinating story, if the present aim was historical or literary. But while our purpose is the more modest one of giving you the story of brick on the side of their every-day, practical value to you as a permanent, economical, and beautiful building material, a word or two about the other phases of the subject may be of interest.

If aristocracy prides itself on its ancient lineage and honorable service, then brick may claim to be a very aristocratic material. Or, if strength and refinement come to men through the experiences of trial and difficulty, then brick too may claim this sort of distinction. The archeological excavator finds evidence that sun-dried, or adobe, brick were used thousands of years before the earliest recorded date of history, as given on a brick tablet of the time of Sargon of Akkad, 3800 B. C., founder of the Chaldean empire. It was very natural for the dwellers along great rivers, such as the Euphrates and Tigris, to notice on the banks the sun-baked and irregularly cracked clay blocks which, after a little crude shaping, proved suitable for building a wall.

Babylonia

With the dawn of recorded history, in the fourth millennium before our era, the Chaldeans already practiced the art of working clay and, after moulding it to the proper size and form, baking it in the sun into hard and durable adobe brick. When they learned to burn the brick, as they had at the time the Tower of Babel was built, thus converting the clay into a hard substance, durable as granite, we do not know. But by the time of Nebuchadnezzar, the great Babylonian king (604-562 B. C.), men had acquired the art not only of making hard-burned brick, but of beautifully enameling them. The Babylonians evidently prized the art highly, for it

was taught them, tradition claims, by no less a person than the great fish-god Oannes himself. And the king, to be nothing behind, took the industry under royal patronage and stamped his name on the brick. Thus the trademark would seem to have a very aristocratic and venerable origin.

Herodotus, the Greek historian of the fifth century B. C., gives us a glowing account of the wonders of Babylon, the most striking of which were the immense walls, the splendid temples, and the marvelous hanging gardens which Nebuchadnezzar built to please his Median queen—all built of brick. The Assyrians, who derived their civilization from the Babylonians, much as the Romans afterwards did from the Greeks, followed the brick tradition and have left us remains of vast palaces of brick, as well as great brick libraries, that is, writings of all sorts inscribed on burnt clay tablets.

Egypt

It was doubtless from the Mesopotamian plains that the art of brick-making in ancient times spread eastward to Persia, India, and China, and westward to Egypt, Asia Minor, Greece, and Rome. In Egypt, which rivals Babylonia in the antiquity of its civilization, the most ancient brick

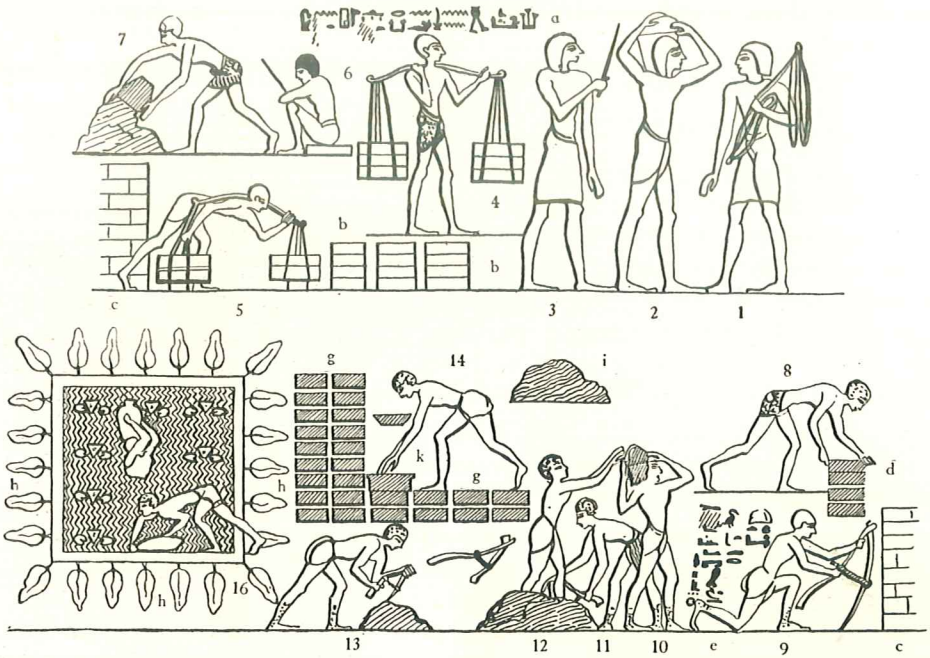


Fig. 1. Man returning after carrying the bricks.
Figs. 7, 9, 11, 13. Digging and mixing the clay or mud.
Fig. 16. Fetching water from tank, *h*.
Figs. 3, 6. Taskmasters. *Figs.* 4, 5. Men carrying bricks.
Figs. 8, 14. Making bricks with a wooden mold, *d*, *k*. At *e* the bricks (*tobi*) are said to be made at Thebes.

Foreign Captives Employed in Making Bricks at Thebes

From Wilkinson's *Ancient Manners and Customs of the Egyptians*

remains do not go back of the fifteenth or sixteenth century B. C., as represented in the two brick pyramids of sun-dried brick found at Dashur, a few miles south of Cairo. Perhaps it was here that Herodotus saw the singular inscription which his Egyptian guide thus interpreted for him: "*Disparage me not by comparing me with pyramids built of stone. I am as much superior to them as Ammon is superior to the rest of the deities. I am constructed of brick made from mud which adhered to the ends of poles and was drawn up from the bottom of the lake.*" If we found in ancient Babylon the trademark practice in the manufacture of brick, we have here in ancient Egypt a pretty good line of brick advertising. Indeed, the Egyptians seemed to prize the brick industry as highly as their predecessors, for they ascribed the art to Nun, the oldest and wisest of their gods, and the Pharaoh monopolized the business by stamping his name on the product. The Egyptians, however, never carried brickmaking to the extent or perfection found in Babylonia.

Europe

Europe naturally learned its practice of making and using brick from the Romans, the great builders of antiquity, who have left splendid and extensive remains of brickwork in nearly every part of their wide domain. The Baths of Caracalla and the Basilica of Constantine at Rome, and the remarkable dome of St. Sophia's at Byzantium, or Constantinople, are striking examples of Roman practice in handling brick. After the confusion of the Barbarian invasions had subsided and the Church had brought something like order into European society, architecture, especially with the stirring times of the Crusades, began a brilliant career in the so-called Romanesque and subsequent Gothic periods. Here brick found its place, and in countries like northern Italy, southern France, Germany, and the Low Countries, where clay was abundant, extensive building in brick was carried on.

The Moors in Spain also showed themselves masters of the craft, as may still be seen in the Alhambra at Granada, and the Mosque, now Cathedral, of Cordova. In the great Gothic period of the thirteenth to the fifteenth centuries, brick entered upon its palmy days. It was freely and fearlessly used with most effective and artistic results, notably in

Twelfth Century Church at Cremona, Italy
The enduring brick show beauty and dignity

northern Europe where the rich and growing burgher cities built of brick many a splendid city gate, church, town or guild hall, and mansion.

England

In England, from which our own brickbuilding practices have been chiefly derived, the first manufacture of brick was that of the Romans during their three and a half centuries of occupancy. The home industry, however, does not appear until the thirteenth century; but it was the times of Henry VIII. (1509-1547) before English brickmaking was perfected, probably under Flemish influence. The great fire of 1666 transformed London from a wooden to a brick town and gave a great spur to the brick industry. It was, however, the days of Queen Anne and the Georges, in the eighteenth century, that brought a decided brick vogue which almost drove out all other kinds of material, and resulted in those fine old country houses so representative of substantial comfort and dignity, which we see scattered throughout England today. And up to the present time English builders have maintained a fine sense of the architectural values in sound and beautiful brickwork, as may be seen in many splendid modern examples.

America

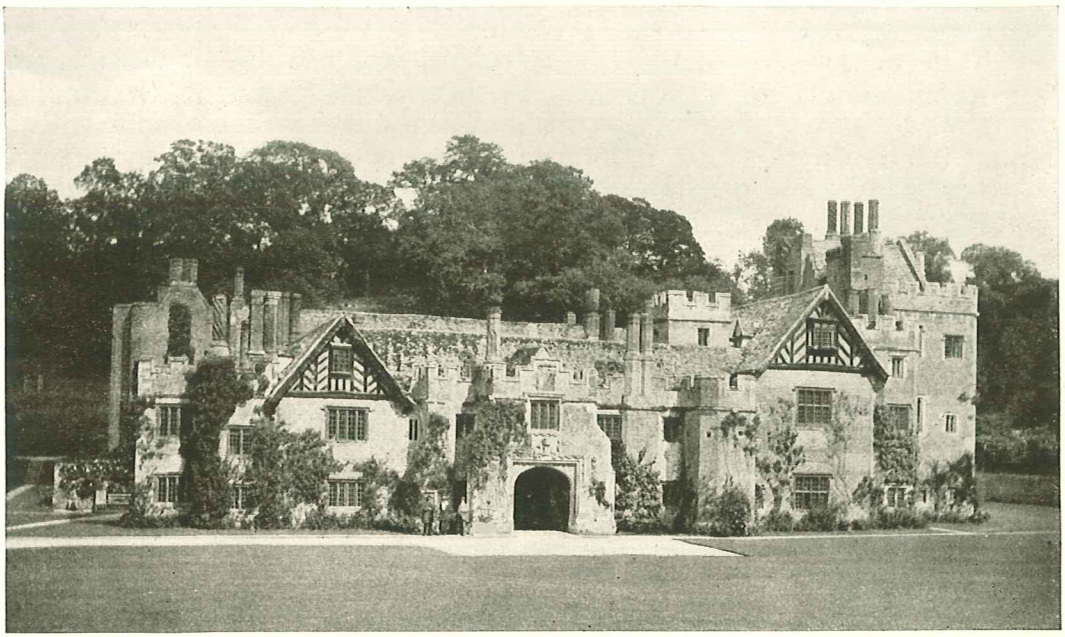
America is not without its brick antiquities, for the Spanish Conquistadores found crude but excellent adobe brickwork in Peru and Mexico, and further developed it in their settlements. In the North American colonies, which very naturally followed European, especially English, practice, the first brick houses were built of material brought from Holland or England; but in Virginia, as early as 1611, and in Massachusetts, as early as 1629, the domestic industry was established. The Colonial days produced fine types of brick architecture from New England to Virginia. In the nineteenth century, however, up to about 1880, American brickbuilding was largely confined to the use of common brick for ordinary construction or for backing stone-faced walls. From that date to the present a growing taste has demanded and secured artistic effects in the brick wall by the use of specially selected or manufactured brick which, in a bewildering variety of beautiful color tones and textures, have been sympathetically and artistically treated by our leading architects, as illustrated in all parts of our country.

The Distinction of Service and of Origin

Thus brick has attended the course of humanity from its most primitive times and offered itself for the most distinguished uses. As a writer in *The House Beautiful* of June, 1919, says: "Brick received the royal favor in ancient civilizations long before our ancestors emerged from savagery. A Nebuchadnezzar or a Rameses knighted them by stamping upon them their august names, and the regal material was builded not only into kingly hall and palace, but into sacred temple and holy fane. Brick have preserved for us

our earliest recorded dates, and upon their faces have been graved in indestructible characters the lover's message, the merchant's contract, the king's decree, the wise man's proverb, and the revelation of the gods."

To this distinction of use and service, brick can add a distinction of origin and purifying experience to which nature and art have subjected them. The argillaceous earth or clay of which brick are made and which we think of as so much common mud, often troublesome enough, is a remarkably complex and refined product of untold geologic ages. Known as a hydrated silicate of alumina—in chemical symbols, $Al_2O_3,2SiO_2,+2H_2O$—with sundry intermingled impurities, such as oxides of iron, calcium, magnesium, potassium, sodium, titanium, and sulphur, it is the distintegrated remains of feldspathic rocks which themselves are the product of titanic changes during the earliest periods of earth formation. As the detritus of these rocks in paleological times, millions of years ago, clay has, according to the writer above cited, "lain at the site of its origin as residual, or been torn away by successive winds, rains, and floods and then deposited at different levels and distances, determined by specific gravity or the force of the current, as sediment on river, lake, or ocean bed. In either case, through long geological periods, it has been subjected to the greatest natural vicissitudes of successive subsidence and elevation, displacement, incredible pressure, fierce heat and bitter cold, and to all the changes of leaching and deposition due to percolating waters with their freight of mineral and vegetal impurities, until in our



Compton Wynyates, Earl of Northampton's Seat, Warwickshire, England

This fine old mansion of brick and oak construction was built by the present owner's ancestor, Sir William Compton, Chancellor of Ireland, under Henry VIII. The prevailing style is Tudor with a reminiscent Norman Keep or Donjon

day it shows, wherever found, a bewildering complexity and variety of composition." In the main, three kinds of clay are utilized for the manufacture of brick: (1) surface clays, of which the commoner type of brick are made; (2) shales, which immense pressure has nearly reduced to the form of slate; and (3) fire clays, mined at deeper levels and so-called because of their refractory qualities.

The Trial of Fire

If nature has subjected clay to the severest vicissitudes, man will also subject it to the trials of fire; for, besides the peculiar quality of *plasticity* by which clay yields to and retains any form given it, it has the quality of *convertibility* by which, under the magic of flame, it becomes a hard, tough, and durable substance more lasting than stone or granite. Sir Charles Lyell in his *Antiquity of Man* says: "Granite disintegrates and crumbles into mica, quartz, and feldspar [the base of clay]; marble soon moulders into dust of carbonate of lime; but hard, well-burnt clay endures forever in the ancient landmarks of mankind."

Owing to great diversity in clays, and in view of the results desired, the burning of face brick in the kiln requires great skill. Depending upon the nature of the clay and the product aimed at, the ware is subjected to a heat of from 1500° to upwards to 2200° Fahrenheit. First, there is a *water smoking* period during which all the moisture is driven out of the ware, followed, as the temperature rises, by *dehydration* which means the expulsion of the H_2O in composition, and then at a still higher temperature, by *oxidation* of the mineral impurities in the clay. Finally, at the highest heat of all, the ware is brought to various stages of incipient *vitrification* when the fires are drawn and the kiln is allowed to cool. During this entire process, the impurities in the clay are burned out or transformed into the beautiful color effects seen in the finished product. To enhance these effects, the manufacturer of face brick sometimes mixes different clays, or adds certain ores, or even sets the brick in the kiln in such a way as to get the effect of the superheated kiln gases. But in any case, it is always the magic of the flame, working its transforming wizardry on the constituent elements of the clay, that gives to face brick the endless variety of their exquisite shadings and color tones.

Methods of Manufacture

It is a long cry from the primitive method of mixing and moulding brick by hand and drying them in the sun, to the modern technical methods and power machinery used by the American manufacturer. Determined by the kind of clay and the kind of brick wanted, there are three chief methods of manufacture: slop- or sand-mould, wire-cut, and dry-press.

By the first method, the clay, in a soft condition, is pressed by hand or machine into moulds which have been flushed with water or sprinkled with sand, to keep the clay from sticking to the moulds. Hence the terms "slop-mould" or "water-struck" and "sand-mould." By the second method, the

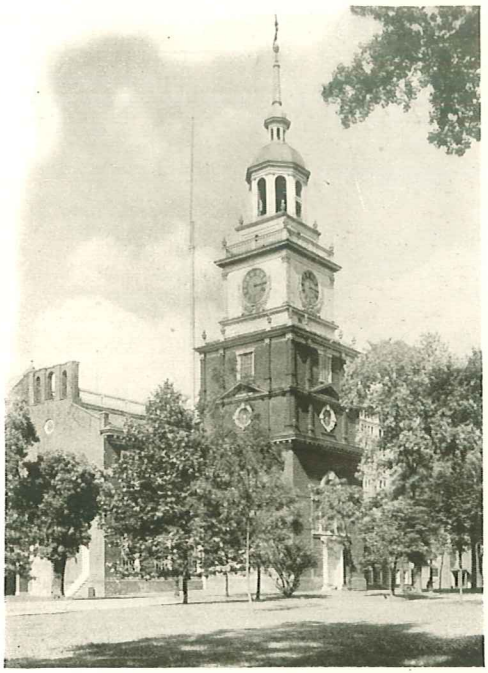
clay or shale is ground and tempered into the consistency of stiff mud and forced by an auger machine through a die in the form of a bar, having the cross-section of a brick. This bar is carried by a belt to a slotted steel table where a frame, strung with a series of piano wires, revolves at proper intervals, cutting the bar into the desired sizes. These machines will turn out as many as 100,000 face brick a day, and in some common brick plants they are built for a daily output of from 250,000 to 300,000. The dry-press method reduces the clay to a fine granular form which is then, in nearly a dry condition, forced, under immense pressure, into the proper sized moulds.

The "green" brick as they come from the machines require, except in the case of the best dry-press brick, a certain period of drying before being set in the kiln where, for from five to ten days, depending on the quality of the ware and the general conditions, they are subjected to a process of burning, as indicated above, before they are ready to be built into the wall. So that, when you select a fine face brick to your taste, you get a product which nature has taken long to create and to which man has devoted his best scientific knowledge and inventive art.

A Wide Choice

The American manufacturer of face brick has far outstripped the rest of the world in the wide range of color tones and textures he offers. The whole sweep of color, in smooth or rough textures, is at your command, from the pure, severe tones of pearl grays or creams, through buff, golden, and bronze tints to a descending scale of reds, browns, purples, maroons, and even gun metal blacks. Thus, instead of living in a house of a dull, insubstantial, unattractive appearance, you can have, in face brick, a substantial, enduring house that presents to the eye a veritable symphony in color, at once a satisfaction to yourself and a cause of appreciative remark by your neighbors or the casual passersby.

We are now going to tell you of the preëminent practical merits of face brick, both structural and artistic, affording at once strength and beauty in the wall, and thus offering the best investment you can make in whatever kind of building you purpose to erect.



Photograph by Philip B. Wallace

The State House, "Independence Hall"
Philadelphia

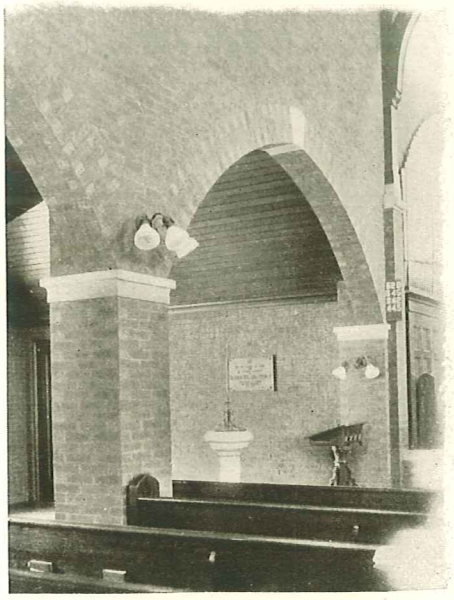
Three Basic Requirements in Building

THERE are always three chief considerations of equal importance which, according to the old Latin authority Vitruvius, enter into every building operation: first, *utility*, or such an arrangement of the inner parts as to meet the purpose, public or private, for which the building is erected; secondly, *strength*, or such durability as justifies the care and expense involved; thirdly, *beauty*, or such attractiveness as delights the eye and satisfies the artistic requirements of harmonious color and form. The architect looks after all of these. The first, or utility, depends entirely upon his skill and genius in laying plans, while the second and third, or strength and beauty, depend largely on the nature of the materials he chooses.

The Architect's Choice

In choosing his materials for strength, the architect is acting for structural reasons; he wants a sound and enduring material. Considering beauty of material, he is acting for artistic reasons; he wants a material that gives attractiveness and charm to his work.

For both of these requirements, structural and artistic, no other building material, taken all in all, can equal brick. In strength, in durability, it is surpassed by none, and in varied beauty, charm of appearance, it presents a varied possibility that surpasses them all. Far less expensive than such materials as stone, granite, or marble, it is more enduring, all things considered, and easily lends itself to the dignity and massive character of the most elaborate and pretentious structures. The history of architecture and the present practice of builders in our great cities give ample proof of structural and artistic success in monumental buildings of brick.



Detail of Church Interior, Park Ridge, Ill.
Brown & Walcott, Architects

On the other hand, only slightly more expensive than such materials as wood or stucco, its preëminent superiority over them, both in strength and beauty, durability and charm, is obvious. You can build a palace of brick and it will fittingly express "the dignity that doth hedge a king," and you can build a cottage of brick which as fittingly expresses the peasant's homely comforts and humble enjoyments.

Municipal Pier, Chicago, Ill. Charles S. Frost, Architect
Face brick, with their blended color tones, are just the material for great wall surfaces

On the practical side, the whole story of brick is summed up in two words, Strength and Beauty, or structural durability and artistic charm. No matter what you intend to build—a great business block; a city or district school; a church, small or large; a hospital; a country mansion or a town house; a library; a theater; a railway station; a garage; or a bungalow, use face brick—it pays. It pays because face brick are peculiarly fitted to all these uses in a way to secure both structural and artistic merits, resulting not only in personal satisfaction, but also in an appreciable addition to your yearly balance. People, as a rule, would like to use brick in building but regard it as too expensive. This is a grave mistake based, as it is, on comparisons of forty or fifty years ago. We are sure we can show you in the proper place that the brick house, when properly constructed, is really the most economical of all.

Interior Brickwork

You perhaps have never thought of brick as used for any other purpose than for building exterior walls, yet face brick are used in a most charming way for the decorative finish of interior wall surfaces. In churches, assembly

Sun Parlor of Residence, Atlanta, Ga. Edward E. Dougherty, Architect
It would be difficult to secure a warmer or more genial decorative effect for these interior walls

rooms, school vestibules and corridors, railway stations, great hallways, salesrooms of all sorts, rest pavilions, and other public or semi-public places where it is desirable to combine permanence with decorative effects of a light, cheerful character, extremely attractive results are secured by the use of smooth or semi-smooth face brick of a pearl gray, golden buff, tan, light bronze, or reddish tone.

For kitchens of all kinds, hospital wards, factory workrooms, or such places as require scrupulous cleanliness, a face brick coated with a salt glaze or enamel is admirably adapted. For some interiors such as club or hotel grills, rich tones of red in roughish textures are most pleasing. Then, there is the indispensable decorative interior effect of the hearth. Whether you plan some elaborate baronial sort of mantel and fireplace or a cozy little ingle nook, you will find nothing either in point of durability or beauty that excels the right kind of brick. Every home ought to have a beautiful face brick fireplace about which the family and friends may gather of a winter evening in happy converse.

In all cases, the varied tones and textures of the brick, together with the possibilities of bond pattern and mortar color, whether severe or more ornate

effects are desired, lend themselves to the very successful handling of dadoes, panels, and friezes on the interior wall surfaces. While the economy of this treatment of interiors is apparent—redecoration is never desired or required—it is the substantial and chaste artistic effects that make the appeal.

Supplementary Uses of Brick

Besides, there are numerous supplementary uses of face brick that add greatly to the beauty of the house surroundings. Garden walls, gateways, and walks; fountains; pergolas; summer pavilions; terrace walls and steps, and porches are greatly enhanced in permanence and attractiveness by the use of a well selected face brick. For walks, and terrace and porch floors, the standard form of brick may be used laid flat or edgewise, or a brick made purposely in the form of a tile, with rough or smooth surface, as the case may require.

Unfortunately, the printed page cannot reproduce the exquisite charm of brickwork in its varied blendings of color tone, especially when it is seen in the lights and shadows of the passing day. Otherwise, you should have the pictures which would vividly tell their own story and save you the necessity of having us try to paint the lily, in trying adequately to describe the beauty of brickwork.

Fireplace in Residence, Ipswich, Mass. Philip B. Howard, Architect
A roaring fire of a cold night sets off to advantage the strength and beauty of the brick

Home-Building

NOT to tire you with too much detail, let us for a typical example briefly examine the merits of face brick as they apply to the most important building which, in all your life long, you can erect—a home. We do not need the advice of statesmen, philosophers, or divines to convince us of the fundamental importance of the home for the security and welfare of any civilization. The home is the source of all virtues, domestic and civic. The hearth is the cornerstone of a sound and lasting social order. We may well adapt the words of Burns, in his *Cotter's Saturday Night*, to our American homes where Christian virtues are instilled and cherished:

"From scenes like these our country's grandeur springs,
That makes her loved at home, rever'd abroad."

We may be certain that when American homes decay, America will decay, just as America will continue to grow in power and influence when American homes grow and deepen in moral value. The feeling for home is especially vital to our country, with its rapidly increasing population, as the most effective influence in developing and steadying our American institutions.

Residence, Forest Hills, L. I. Grosvenor Atterbury, Architect
Could anything but brick produce in this charming little cottage this effect of beauty and solid comfort?

To every normal man the word "mother" brings back the tenderest and most valued memories. And all those memories cluster about the home where the mother has exercised her gentle and beneficent sway. It is the mother's brooding care, her never-ceasing sacrifice and devotion, her quick helpfulness and comforting sympathy that make home the most sacred place on earth, fit symbol of what men everywhere have regarded as the final spiritual goal of mankind.

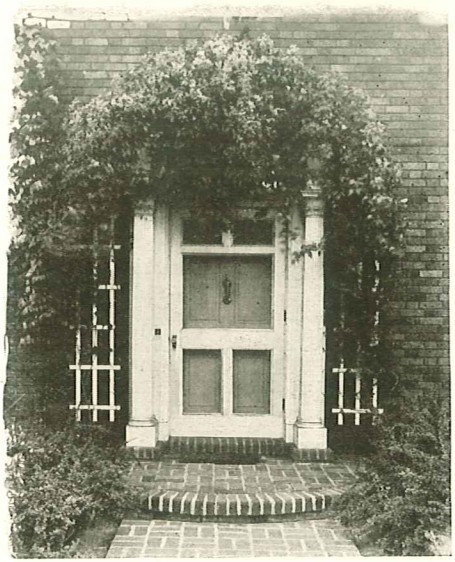
The Home Feeling

For this reason, whether it is the child wandering in strange places, or the world-weary man burdened with a thousand cares, he longs for home. John Howard Payne made himself immortal when he struck the one perfect chord of home in his universally known lyric:

"'Mid pleasures and palaces, tho' we may roam,
Be it ever so humble, there's no place like home."

Even the United States Government, which is always fittingly impersonal, practical, and unsentimental, has urged, through the Department of Labor, that all public service corporations "encourage people to own their own homes and thereby satisfy one of the fundamental needs of humanity—'the possession of homes.'"

When your friend greets you at his door and adds, as he cordially invites you in, "Make yourself at home," you know that he has offered you the sum total of hospitality. For home affords you not only the simple creature comforts of food, shelter, and warmth with a sense of security and well-being, free from stiff formalities and restraints, but it is a refuge from the toil and worry of the great outside, headlong, jostling world, and the center and source of all those dear affections of sympathy, kindliness, and mutual service which give to life its true meaning.



Doorway, Danville, Ill.
Liese & Ludwick, Architects

Value in Sentiment

As the French say, when you are at home you are "with yourself." Before the blazing fire you can dream at your ease or read your favorite book, while worries and troubles with the whole roaring world are shut outside. Nothing is more pathetic than the man who has no home, unless it be Edward Everett Hale's *Man without a Country*.

The home feeling is an asset of the very highest value, for it pays richly in a

Residence, Akron, Ohio. Frank & Wagner, Architects
Note the attractive handling of the brick in the timber work of the second story

sense of self-respect, of more responsible citizenship, of moral poise as a member of the community, besides giving profound personal satisfaction and enriching the spiritual values that arise out of family ties and affections.

Then the community itself regards the home-owner with more respect than it does a floater; he is looked upon as a substantial citizen having a vital interest in the common welfare. It is such values as these, rather than mere money returns on investment, that should lead every young man to set out with the determination to lay by a monthly saving for a home fund, so that he can promise his bride, what to her will prove the best of all gifts, a home. Nothing could be sounder or more wholesome for a young man than to set before him, as a fixed aim, the accumulation of a home-building fund. It will balance and steady him; it will make more of a man out of him; it will make him a better husband, father, citizen, friend.

Practical Values

If, on the sentimental side, the home thus proves to be an investment of incalculable value, it also has, on the practical side, its striking advantages. When you pay rent you are paying for what you have no ownership in. For any needed changes or additions, you are entirely dependent on the landlord's whim. He may be reasonable, and then again he may

not be; but in either case, he and not you decides on what is of deep concern to you, the living comfort, convenience, and welfare of yourself and family. Then you are subject, without any control on your part, to higher rent or notice to quit. You are entirely at the mercy of another's will, a sort of helpless pawn of fate.

But if the money paid out for rent were applied in helping to pay for a home, you become your own landlord and acquire property rights of which no one can dispossess you. The convenient changes or additions you want are subject to your own decision and are added to the value of your own property. You are not subject to higher rent nor can you be put out at another's dictation. If you go out, it is at your own option and you still have in your possession an income-bearing or salable property on which you can always realize what is often a very convenient loan. You can never borrow anything on a stack of receipted rent bills, but you can on your own house.

On Financing Home-Building

To begin with, it is very desirable to ascertain as closely as possible, what your proposed building is going to cost. To do so, you must have definite plans and specifications for your house which you can submit to local contractors for estimates. Then decide definitely on such items as heating, lighting, plumbing, and interior finish, for they very materially affect the total cost. Finally, as every contractor has his own peculiar way of figuring, get more than one bid. In a word, first get your building plans in shape just as you want them, and then secure information on costs, in your own locality. Estimates and reports from elsewhere may be interesting, but they will not give you the definite information you want, in fact, may mislead you.

Except when you buy a house, on contract, already built by some home-building company, you should own a lot, have some money saved up for a first payment, and have your house plans complete, before undertaking the problem of financing. For the terms you get will depend a good deal upon how much money you have to pay down, what and where your lot is, and the character of the house you want to build. We strongly advise you to have saved up at least from 10 to 20 per cent

Doorway at Hartsdale, N. Y.
Tooker & Marsh, Architects

Residence, Kenilworth, Ill. Geo. W. Maher, Architect
The rich red tone of the brick harmonizes delightfully with the surroundings

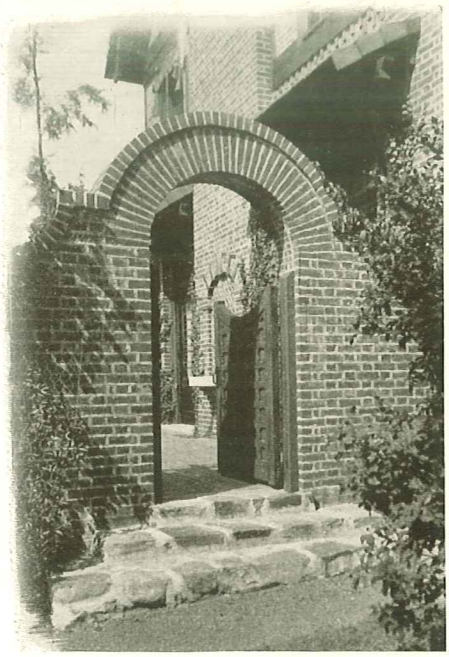
of the value of the house, besides owning your lot. This gives you a splendid start for dealing with the money lender. Be sure your lot is located where the values are likely to increase or, at any rate, are sure not to decrease. Besides having a clear title to the lot, be careful to see that all assessments for improvements are paid; or if not, find out definitely and fully just what they are before you assume them. Then have your plans convincing—that is, such that the house, costing about five times the value of the lot, would show when built the least possible depreciation, and prove readily salable if necessary. Thus equipped, you are well prepared to talk business.

Of course, if you have saved up half enough to pay for the house and lot, there is practically no problem at all, except to be sure that you are in a position to carry and liquidate the first mortgage you place on the property to secure the other half of the needed fund. In fact, you may find it desirable to carry a first mortgage indefinitely, *provided you are sure* that you can make more on the money in your business than the mortgage costs. But do not do this without discussing the matter thoroughly with your banker or attorney. Tell either of them frankly the entire situation.

But, as in most cases, you perhaps have only a small amount saved up and want to pay the balance on your house as you go along, month by month. This can be safely and easily managed if you meet one condition: see that the sum you can *comfortably* spare each month will amount in the course of ten or fifteen years to the total of your obligation. The amount you can comfortably spare will be made up of the present rent you are paying, which will be justifiably 20 or 25 per cent of your income, plus what you can save in addition during the year. The total amount of your obligation, taking for granted you own the lot, will be the cost of the house,—less your first payment,—plus interest on the deferred payments. In addition, allow for such items as fuel, water, light, taxes, insurance, and upkeep.

Three Methods of Procedure

There are three general methods by which one can obtain assistance in financing the building of a home: paying on contract; borrowing on first and second mortgages; or becoming a member of a building and loan association. In some cities, "Own Your Home Bureaus," or coöperative loan associations, have been organized by boards of trade, real estate operators, and others interested in stimulating the development of the community, which will undertake the whole operation for you on very fair terms. The basis, however, on which all of these agencies make loans is the value of the lot on which the house is to be built, plus the cost of the house. While local customs, interest rates, and laws governing building loans vary widely in the different states, the general principles are much the same the country over, and one can learn what the local variations are by consulting his banker, his attorney, or a reputable real estate dealer.



A Garden Gate, Cold Springs Harbor, L. I.
Grosvenor Atterbury, Architect

Paying on Contract

By one method of contract payment, you can finance your home-building in the easiest way, but you are not so certain of getting value received or what you want. With a small cash payment you may purchase the house and lot from a home-building or development company who hold the title which they contract to deliver to you when your monthly payments, of perhaps one per cent of the total obligation, amount to the total, or an agreed

Residence, Buffalo, N. Y. Lansing, Bley & Lyman, Architects
The light gray brick give the house a rare distinction among the green foliage

part thereof. Or, if you own your lot and have the plans of the house you want built, the company may, on your payment of an initial sum amounting to from 10 to 20 per cent of the value of the house, take over your lot and build the house for you on contract as described above. In this case, before signing the contract, see that it clearly and definitely indicates the plans and specifications according to which the house is to be built; and, in either case, always be absolutely sure of the business standing of the people you are dealing with.

On the other hand, in communities, where home-building bureaus or associations, made up of well-known, responsible citizens, have been organized, you can, if you have on hand, say, 20 per cent of your project, get your house built on the contract plan, and feel sure that interest rates and commissions will be the lowest possible consistent with sound business. The convenience of the contract over other methods is that you are always dealing with only one party; you, however, may be dispossessed within sixty days, whereas with a mortgage, you have a much longer time in which to turn around.

Having a lot and a certain amount saved up as an initial payment on the house, you are in a position to place a first mortgage of 50 or 60 per cent on the total value of house and lot, and a second mortgage on the remainder

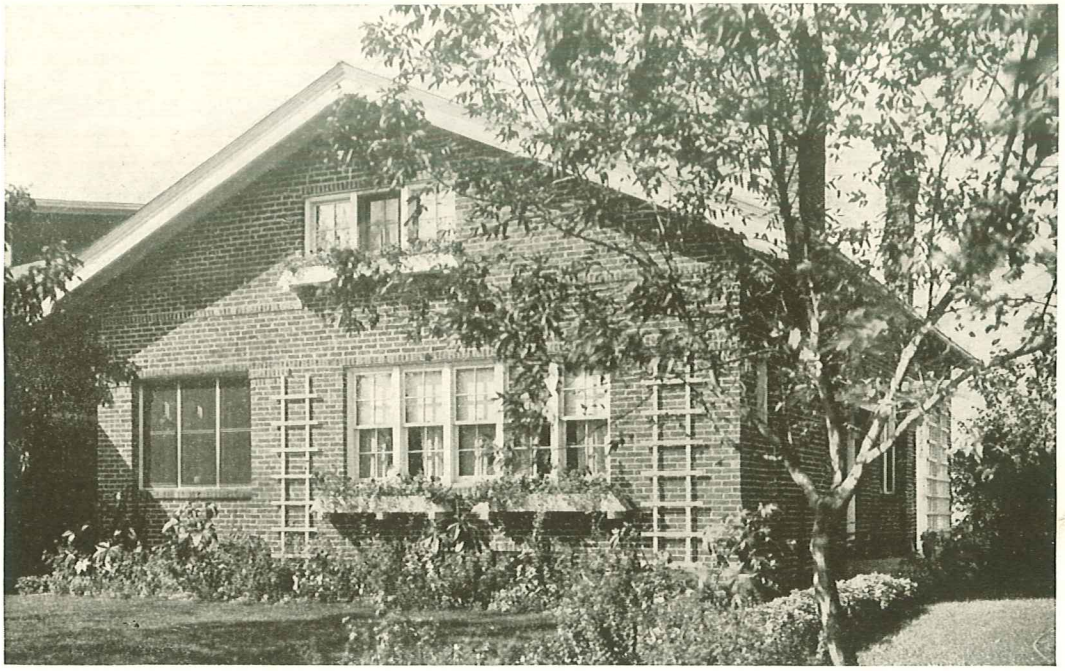
less your initial cash payment. Thus, if your lot has an appraised value of $1,500, and your house will cost $7,500, you can get on the first mortgage at least $4,500, leaving only $1,500 to finance on a second mortgage, provided you could make an initial payment of $1,500. Whether your house and lot were valued at less or more than this, the principle would be the same.

Handling the Mortgage

Banks and other institutions that deal in first mortgages do not, as a rule, handle second mortgages, but there are in almost all communities reliable institutions and individuals that do; and many contractors who build homes will accept a second mortgage in part payment of their bill.

Second mortgages always run a shorter time than first mortgages and usually require monthly payments on principal and interest. Get, let us say, a five-year first mortgage with the privilege of renewal, and figure on paying off your second mortgage in three years or less. This will make the monthly payments a little heavy for the first three years, but put you in high favor with the first mortgagor and make it easy sailing for the rest of the time.

The more permanent the value of your house and the less depreciation it is likely to show, the easier it will be to get your loans. With a brick house you



A South Side Cottage, Chicago. J. Scheller, Architect
This charming little face brick home illustrates well the elegance of simplicity

Residence, Glencoe, Ill. Chatten & Hammond, Architects
The size and form of the brick units evidently enhance the effect of the wall texture

need not figure depreciation at all until the end of the first five years and after that at the rate of only one per cent a year. The upkeep will be reduced to a minimum and, with a non-flammable roof on your house, the insurance rates are very low. The other day a young man took one of our house plans to a banker in Chicago to negotiate a loan; the banker at once said: "If you put a tile roof on the house, you can have the money."

The one disadvantage of financing your house by first and second mortgages is that you are dealing with two parties, but this need not trouble you if you exercise the proper care at the beginning. As the first mortgage involves little risk, you can place it satisfactorily at a moderate rate of interest, and at a moderate cost of from 2½ to 4 or 5 per cent for commissions and fees. But as there is a good deal more risk in a second mortgage, you may fairly expect to pay more for your loan. However, do not pay more than it is worth, as you may do in dealing with mortgage brokers of a certain type.

On the other hand, in case there is a local "Own Your Home Bureau," such as already alluded to, you can begin on some such arrangement as the following. If you pay down, say, 20 per cent of the value of the house and lot, the bureau will place the first mortgage and carry the second, while you

make monthly payments of one per cent of the total value of house and lot until both mortgages, bearing 6 per cent annually, are cleared.

But aside from such favorable arrangements, it may be said, in general, that if you have your lot and a little saved up for a first payment, and then calculate how much you can, without embarrassment to yourself, set aside monthly from your income, you should have no trouble in satisfactorily financing, on the mortgage plan, the home you ought to be able to afford building.

Building and Loan Associations

In case you have little or no accumulated capital, the building and loan association offers an excellent plan for financing your project in which you are dealing with only one party. Some local association whose officials are known to you will perhaps prove to be the most satisfactory to deal with. Membership in the association is necessary in order to participate in its benefits, as it is operated by and for its members only. You become a member by purchasing shares of stock—as many or as few as you choose—which may be paid for in monthly or weekly installments of 50 cents or more per share. These payments participate in the profits of the association, compounded quarterly or semi-annually.

To secure a loan for your project, you subscribe for stock equal in amount to the sum desired, paying monthly installments of perhaps one per cent of the value of the stock, and when the accumulation of these payments and accrued profits thereon amount to from 20 to 35 per cent of the desired loan, according to the rules of your particular association or the state laws, you get the loan by assigning your stock to the association, and also giving a first mortgage on the house and lot to the association for the difference between what you have paid in and the total of your loan.

From this point on, you simply keep paying your monthly installments on the stock, and the interest on your mortgage. When your payments on the stock plus their earnings amount to the par value of your stock, you surrender your shares to the association, all indebtedness against you is cancelled, and you enter into full possession of the property. In some cases, you may arrange to apply your accumulating stock periodically on the mortgage and thus reduce your interest charges. In this case, however, you will be proportionately reducing your earnings as your stock decreases in amount. Your monthly payments may extend over a period of from ten to twenty years, according to the particular arrangements you make. On the other hand, some associations will make a Definite Loan Contract with you to pay at any periods that suit your convenience. While the underlying principles of all associations are the same, each association has its individual rules which you should ascertain before joining.

To sum up in a word: Canvass thoroughly the various methods of financing open to you, but make no agreements and sign no papers without proper legal, or other equally trustworthy, advice.

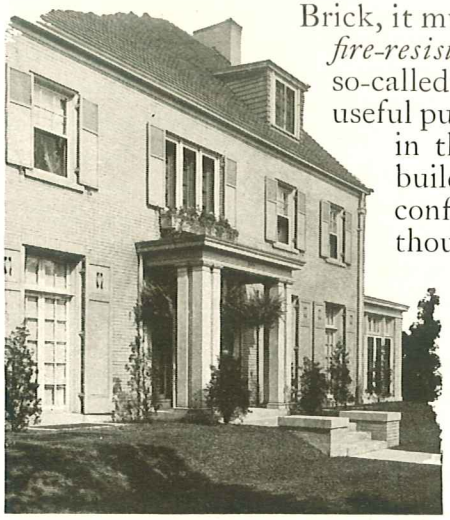
Why It Pays to Use Face Brick

I. Structural Reasons

THE size and form of brick not only give a pleasing impression, as seen in the wall texture, but also make them easily adaptable to the master mason's skilful craftsmanship. He builds them one by one into a solid wall fabric, strong and durable. Hardened and matured in fire, they submit to the heaviest pressures, from 6,000 to 12,000 pounds per square inch, and resist both the attacks of flame and the corrosions of time. Brick may well be called an everlasting material because they neither burn nor decay. Their history affords sufficient testimony as to their enduring character under all circumstances. The upright brick walls and chimneys after any conflagration stand as solemn witnesses of their structural worth.

In the Sunday *Baltimore American* of February 5, 1922, there was featured the eighteenth anniversary of the great conflagration that began in the heart of that city February 7, 1904, and after raging for two days left over 1,300 buildings in ruins, involving a loss estimated at from $90,000,000 to $125,000,000. There was something saved, however, for a special committee, so the account continues, reported that between 200,000,000 and 300,000,000 useable brick worth $5.00 a thousand were recovered. That is, out of the 1,000,000 cubic yards of junk left by the fire it was the indestructible brick alone that gave a merchantable salvage which amounted to from a million to a million and a half dollars. The only buildings that stood up from the fire were brick structures.

A Challenge to Fire



Detail of Residence, Sheridan Road, Chicago
E. Walker, Architect

Brick, it must be remembered, are *fire-proof*, not merely *fire-resistive*. Do not be mislead into supposing that so-called fire-resistive materials, which *do* serve the useful purpose of staying the fire for a short time, are in the same class with brick, which is the one building material that is strictly *fire-proof*. In conflagrations, even stone, granite, and concrete, though unburnable, will crack, or disintegrate, while iron and steel will warp, twist, and at times melt; but well-burned brick face the fire and come through unscathed. Do not suppose, however, that every brick you find on the market is worth buying for your purpose. To get reliable quality, be sure that the brick you buy is a first class product such as manufactured by the members of the American Face Brick Association.

Bungalow, New Orleans, La. Nathan Kohlman, Architect
An excellent example of how admirably suited face brick are to a beautifully designed small house

II. Artistic Reasons

If, structurally, brick are 100 per cent efficient, they can make an equal claim on the side of artistic effects. We have already spoken of the great variety of textures and colors in face brick produced by the manufacturer. This variety is such that the most diverse tastes may be met in uniform shades or, preferably, in blended shades of the most delicate and charming effects. No other building material can approach face brick in the possibility of color schemes for the wall surface, either within or without—and the colors last, for they are an integral part of the enduring brick. But in your choice of texture and tone of the brick themselves, you have by no means exhausted the possibilities of artistic effects in the wall surface. You still have to consider the vital influence of bonds and mortar joints on the result. In selecting your brick, keep in mind especially the kind and color of the mortar joint to be used, as indicated on a later page.

Brick Bonds

Bond in brickwork is the overlapping of the brick one upon the other, either along the length of the wall or through its thickness, in order to bind them together in a secure, structural mass. It is true, mortar is used to

Residence, Moorhead, Minn. "Home of Beauty" House No. 101
This house created such a favorable impression that several neighboring brick houses were built during the season

cement the brick together into a monolithic whole, but the real bond is the overlapping of the brick which the mortar serves to maintain. A glance at any brick wall will make this clear, so far at least as the outer surface of the wall is concerned. It will be seen that the brick instead of resting directly one above the other are shifted back and forth so that the vertical joints in two successive layers or "courses" do not come into line. We speak of this arrangement as breaking the joint.

In dealing with brick bond, two terms are constantly recurring, viz., "stretcher" and "header." When a brick is laid lengthwise of the wall, thus showing its long, narrow dimension or "face" on the surface, it is called a stretcher. If its length extends back into the wall so that its short dimension shows on the surface, it is called a header. The stretcher secures strength in the length of the wall. The header serves to form the transverse bond, that is, the strength of the wall throughout its thickness. When a brick is broken, as the case may require, the fragment is called a "bat." While at certain points of the wall these bats may be necessary, they should be sparingly used and then only according to the best practices of the craft.

In the old days, and indeed up to comparatively recent times, brick bond was used only structurally, that is, to secure the strength of the wall as a solid mass, but in the seventeenth century European builders began to see an artistic possibility in the bond as it appeared on the surface. They began to see the fine tracery of the mortar joint running over the background of the brick, which could be varied into attractive patterns by different arrangement of the brick bond. As a consequence, there have been developed, in the main, three different types of bond which are used at the present day, with various modifications, to secure attractive effects in pattern.

The Different Bonds

The first and most obvious of these bonds is what is called Running or Stretcher bond (Fig. 1). The wall surface is made up of stretcher courses, having at the corners a header which appears as a stretcher on the return side. This bond has the merit of being very strong longitudinally, but lacks transverse strength; consequently, it is modified into what is called Common or American bond by laying a course of headers about every sixth course (Fig. 3). As a type of Running bond, headers instead of stretchers may be used (Fig. 6). As this bond is very slight structurally, it should not be laid except for panels or other ornamental effects. The headers may also be laid without any bond at all (Fig. 11), in order to secure a reticulated or checkerboard effect.

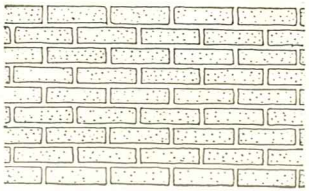


Fig. 1. Running or Stretcher

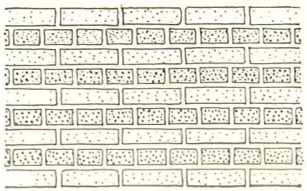


Fig. 2. English

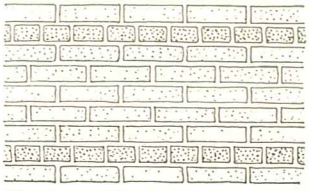


Fig. 3. Common

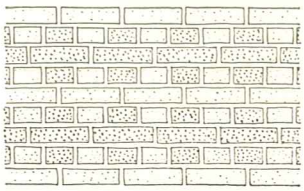


Fig. 4. English Cross or Dutch

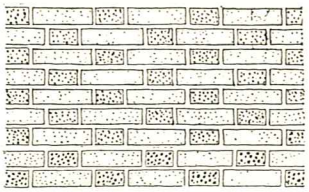


Fig. 5. Flemish

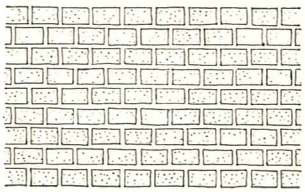


Fig. 6. Header

The method of using headers, as in Common or American bond, in order to secure transverse strength of wall, can be treated in a way to produce very much more pleasing effects, as may

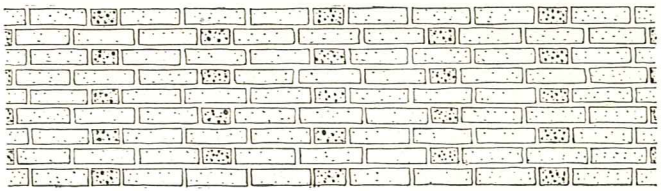


Fig. 7. Three-Stretcher Garden Wall

be seen in the English and Flemish bonds. The English bond is made up of alternating courses of stretchers and headers (Fig. 2). This produces a very pleasing series of Greek crosses and ripple lines up and down the surface of the wall, and the English brick-builders claim for it the great merit of giving transverse strength to the wall. It, however, has a certain monotony that has lead to a modification which greatly beautifies it as a pattern, by breaking the joints of the successive stretcher courses. This is called English Cross or Dutch bond (Fig. 4) and results in a very attractive pattern in the wall of Greek crosses running in diagonal lines. The Dutch bond differs from the English Cross bond only in the way the corners of the wall are treated.

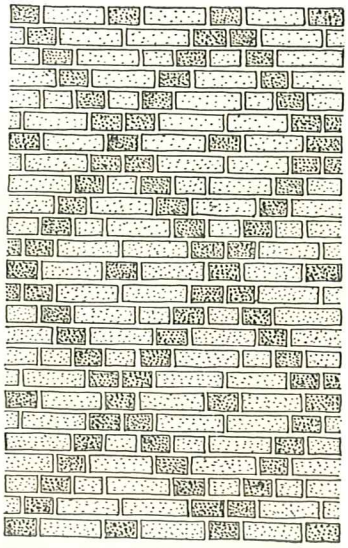


Fig. 8. Header Diamonds

The Flemish bond (Fig. 5) is secured by laying each course in alternate stretchers and headers, the header resting upon the middle of the stretcher in successive courses. This produces a very attractive pattern of dovetailed Greek crosses and is a favorite among builders because of its artistic effect. It also may be modified in various ways so as to produce different pattern effects. Thus the Garden Wall bond, so called, is made by laying the courses with from two to four stretchers alternating with a header (Fig. 7).

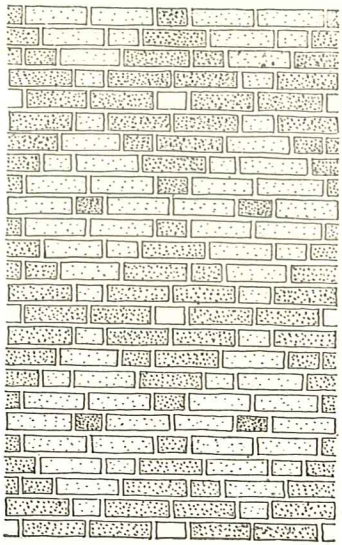


Fig. 9. Modified Garden Wall

Patterns in Brickwork

With the three fundamental bonds—the Running or Stretcher, the English, and the Flemish, innumerable other patterns may be made by the simple device of shifting the stretcher or header in successive courses back and forth, always

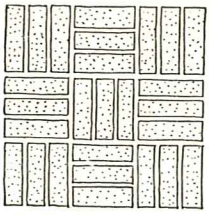


Fig. 10. Basketweave

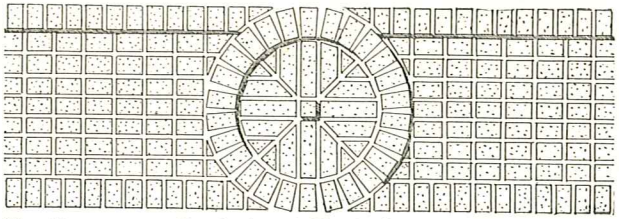


Fig. 11. Rowlock and Checkerboard

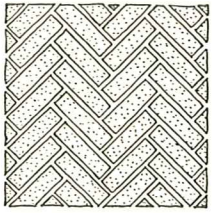
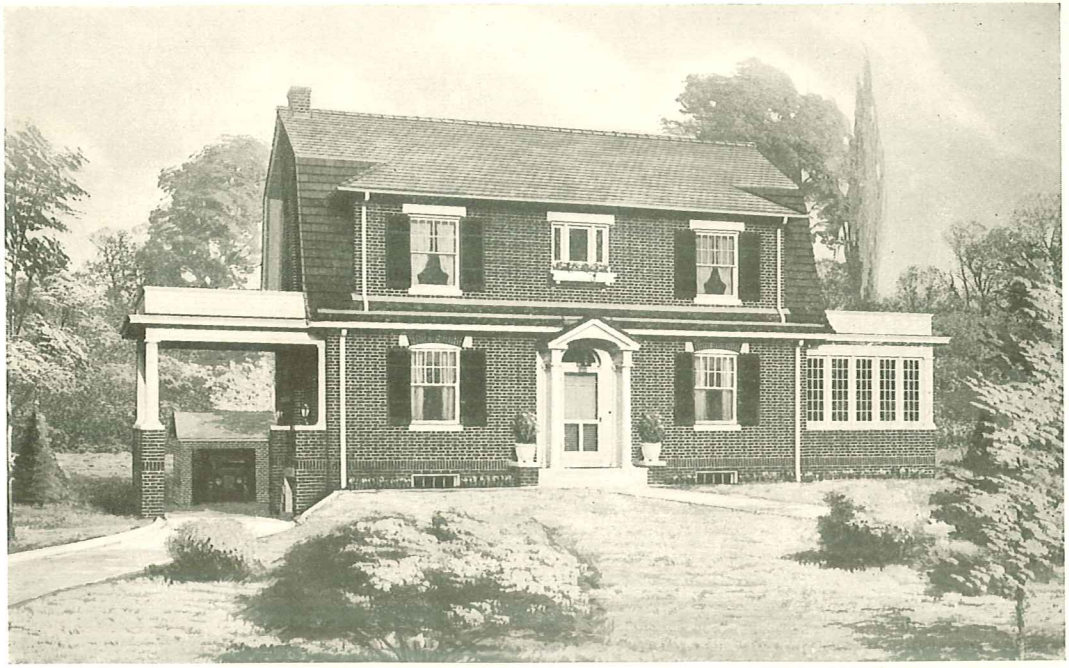


Fig. 12. Herringbone



Residence, Baltimore, Md. J. Raymond Gerwig, Architect
Against its background of trees, this little gem of a face brick house arouses and deserves admiration

breaking the joint, that is, never permitting two vertical joints to lie in the same line. Thus in Fig. 9 the diamond pattern is secured by a modification of a two-stretcher Garden Wall bond. It is, however, only in case of large wall surfaces that patterns of an elaborate character could be recommended; ordinarily, the three bonds mentioned, with their simplest modifications, will cover all requirements of domestic architecture. Affectations should be avoided as in bad taste. The peculiar merit of brick is that its size, surface textures, and color tones adapt it to bond and pattern effects of a chaste and simple character such as may be *felt* rather than *seen*.

In addition to bonds proper and the patterns that may be woven out of them, there are certain pleasing ornamental effects that may be secured in the wall surface by the arrangement of the brick. Thus for a water table or a sill course the header or the stretcher may be set vertically. Treated in this way headers are called "rowlocks" (Figs. 11, 14, 15 and 17), and stretchers, "soldiers" (Figs. 14-17). For dadoes and friezes or for paneling, especially on large

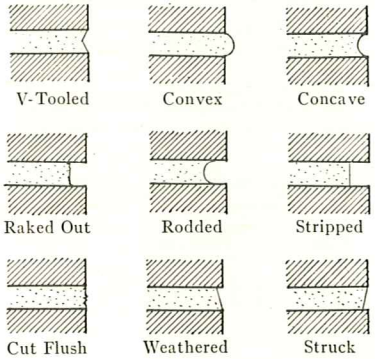


Fig. 13. Mortar Joints

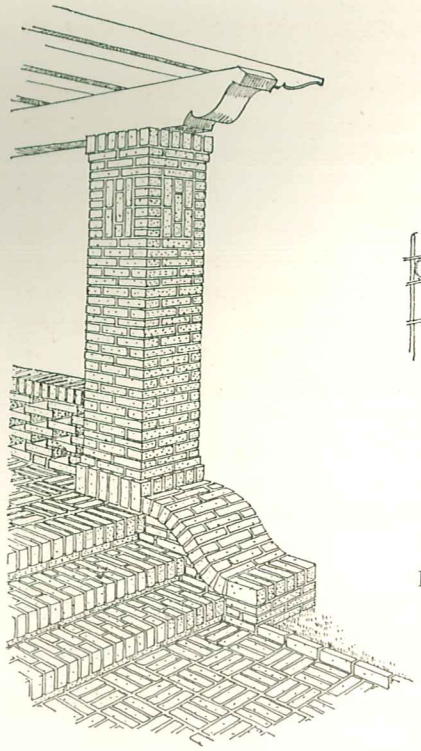


Fig. 14 Porch or Pergola Pier

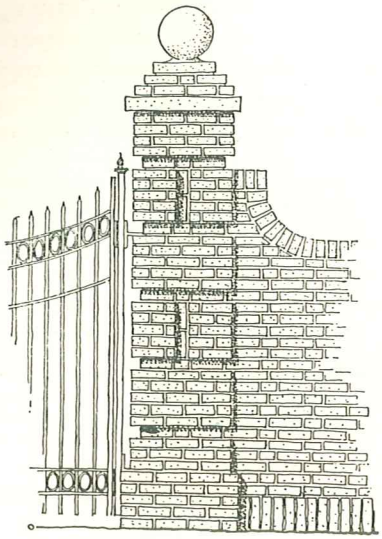


Fig. 15 Gate Post

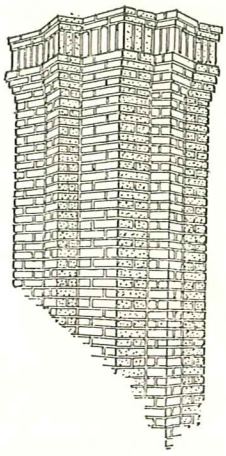


Fig. 16 Chimney Top

A·F·B·A
USE FACE BRICK
—it Pays

surfaces, patterns of a simple or ornate design may be used (Figs. 8-12). Figs. 10 and 12 are good hearth, or garden walk, patterns. All designs may be greatly modified and enhanced by the arrangement of the brick color tones as suggested by the shading in Figs. 8 and 9.

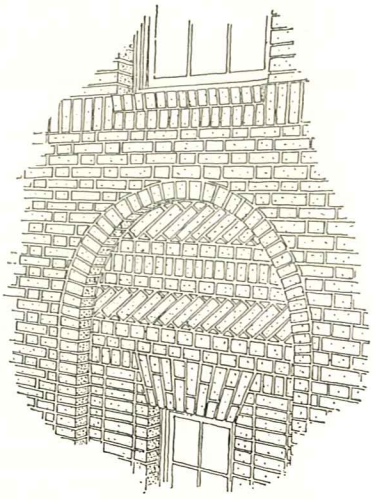


Fig. 17 Arched Window Head

Mortar Joints

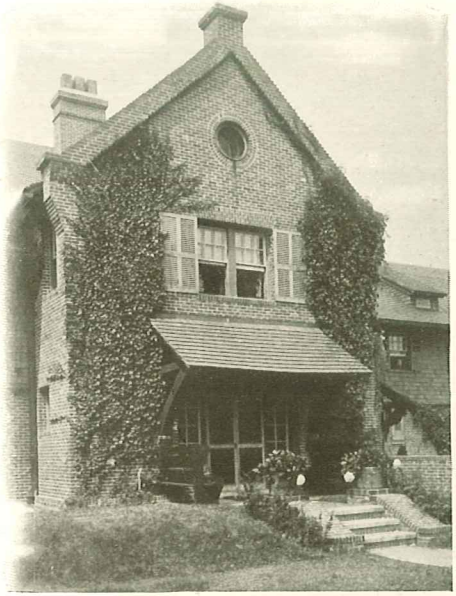
In examining the bond in a brick wall, the eye naturally is first attracted to the brick units as so many colored spots in different pattern effects; but this pattern effect in the brickwork depends very largely upon what at first may be overlooked or disregarded, the mortar joint. The mention of mortar suggests a very commonplace thing which the workman mixes and carries in a hod to the bricklayer; but it is one of the most important elements entering into the beauty, as well as the strength, of a brick wall. When you consider that all the joints in brickwork, both vertical or "head" joints, and horizontal or "bed" joints, are filled with mortar of one color or another, amounting on an average to one-seventh of the wall surface,

it is evident what a vital part they play in the appearance of the entire wall area. An artist will inform you that this amount of color introduced into any surface will greatly modify, by contrast or analogy, the general effect, so that it is of the utmost importance, in selecting the sort of brick you wish for your wall surface, that you also select the mortar joint.

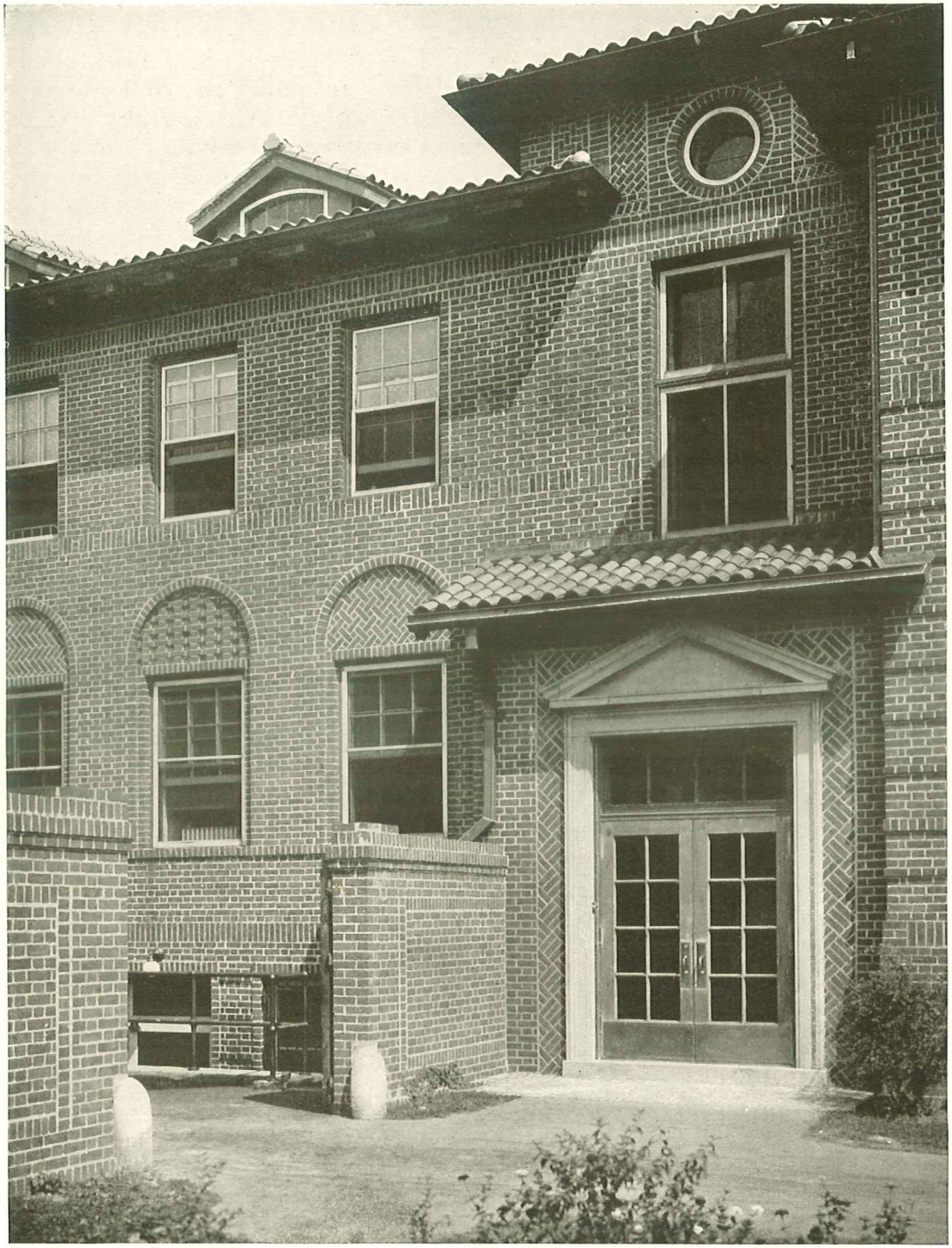
The Elements Involved

Various elements must be carefully considered in dealing with the mortar joint: its color and texture, its size, and its kind. The color of the mortar joint may be such as entirely to destroy the beauty of the brick. On the other hand, if it is properly chosen, it will bring out the fine shades and tones of the brick in such a way as to enhance very greatly their natural beauty. Then, the mortar joint has a certain texture which is produced either by finishing it rough or smoothing it with the trowel or a tool made for that purpose. This mere treatment of the surface of the mortar joint has more to do with the appearance of the wall than one might at first suppose. In addition to that, the size of the mortar joint, running from a thin "buttered" joint up to as much as an inch, naturally affects the color relation of the whole surface; and the kind of joint, whether cut flush, raked out, or tooled in various shapes, has a distinct bearing on the whole effect (Fig. 13). Never decide on a mortar joint until you thoroughly talk it over with a face brick salesman. He will have valuable suggestions to make. Our members or their dealers have beautiful Exhibit Rooms in which you will find the brick laid up as they would appear in the wall, showing clearly the effect the mortar joint has in modifying the color tones of the brick. Make it a point, if possible, to visit such an Exhibit Room, where you are sure to get some very helpful ideas. In a word, do not neglect the mortar joint, for it is one of the most important elements that go to make up the beautiful fabric of the brick wall, in the building of which there is deserved and required the exercise of the very best taste.

All in all, what with the convenient units of stretcher and header, each with its color and texture, you may, in the choice of bond, mortar joint, and pattern, weave the most charming mosaic or tapestry effects in the wall surface,—a possibility offered by no other building material so well as by face brick.



Detail of Residence, Huntington, L. I.
Wilson Eyre, Architect



Municipal Sanitarium, Chicago. Otis & Clark, Architects
Note the patterns and paneling in the walls of courtyard and building

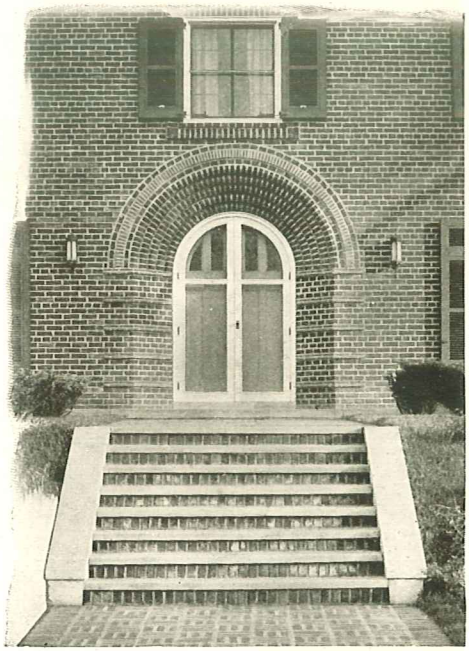
III. Economic Reasons

You perhaps have got into the habit of thinking that a face brick house, however desirable it might be, is too costly for your purse, and that you must content yourself with something less substantial. But this is really a tradition left over from the days when excellent lumber was abundant and cheap. As a matter of fact, the face brick house, with common brick or hollow tile backing, *does* cost more than the frailer structures of wood or stucco on frame, but it costs only a *little* more and, from every point of view, is *worth much more.* Besides, its structural durability and artistic beauty create economic advantages that save you money, and in the end actually reduce the cost of your brick house below that of the less substantial structures. The items that enter into this reduction are (1) maintenance or upkeep, (2) depreciation, (3) fire-safety and lower insurance rates, and (4) comfort with resulting advantages to health.

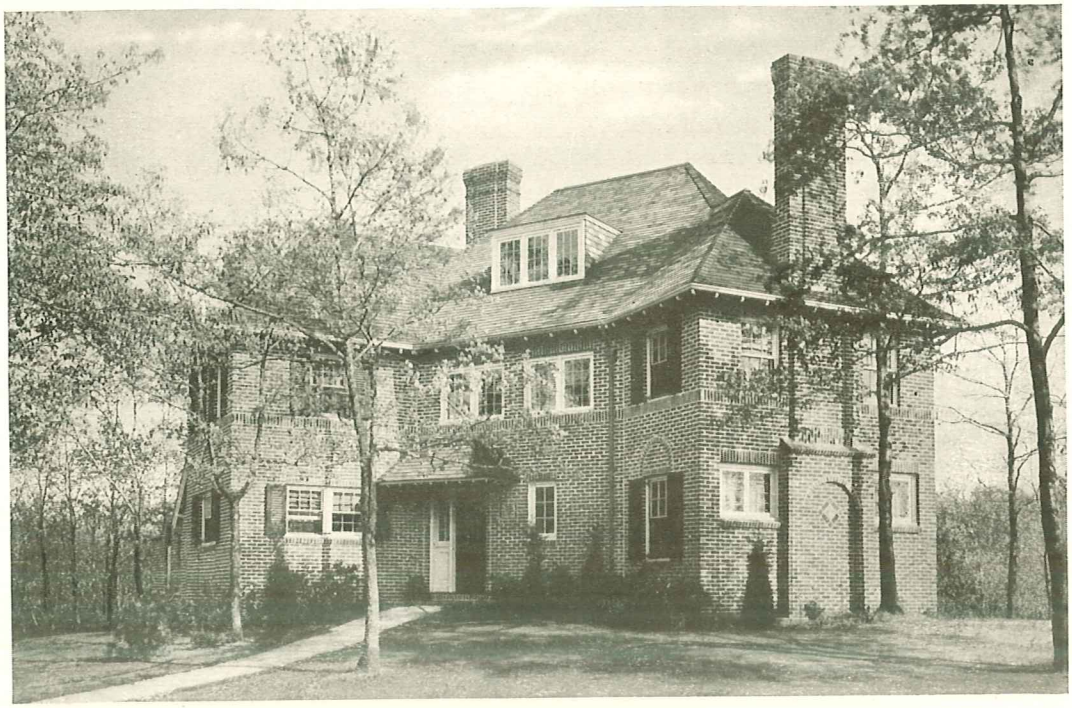
Upkeep and Depreciation

So far as brick enter into a house, it requires practically no maintenance. You do not have to patch, repair, or paint a face brick wall; it wears. It is as sound in twenty-five years as the day it was built. With a frame house on your hands, estimate the cost of the necessary repainting in, say, a period of ten years. The paint bill these days for a moderate sized frame house would run at least to $250. As the brick house would only require paint on the exposed woodwork in doors, windows, and outside trim, two-thirds of the paint bill for frame would be saved in owning the brick house. Add to this paint item the various little repairs necessitated by the cracking and decaying of wood, exposed to the weather, and you have a neat little bill on the maintenance of your frame house.

Depreciation, which is a separate item from upkeep or maintenance, is practically nil in the brick house. Appraisal engineers have estimated it at one per cent a year beginning after the first five years, while a frame house depreciates from the day it is finished at from 2 to 3 per cent annually. This would mean that a frame house valued at $6,500 would at the lowest estimate, 2 per cent, depreciate $1,300 in ten years, while the brick house, worth $7,000, would depreciate only $350.



Doorway, Pittsburgh, Pa.
Janssen & Abbott, Architects



Residence, Newtonville, Mass. Frank Chouteau Brown, Architect
The brickwork is admirably suited to express these finely balanced masses as expressed in the design

Fire-Safety and Insurance Rates

You cannot build and furnish a house without using some combustible material, but by the careful selection and use of material you can reduce the risk to a minimum. There is one thing certain and that is that every brick you put into the construction of your house adds just so much to its fire-safety. Brick walls will not catch and spread fire, but are the one sure means of checking it.

Then the natural fire-safety of the brick house, to say nothing of your security from the terrors and dangers of sudden fire, gives you a substantial advantage in insurance rates. The insurance man who is guided by facts, drawn from wide and long-continued experience, plainly indicates his preference for risks on the brick house. Thus, for example, in cities of the first class, except the very largest, such as New York or Chicago, where the rates are much higher, the insurance on your frame house, or one of stucco on frame construction, will amount, on the average, to fully 37 per cent more than on the brick house. In cities of the fifth class, which, although having only amateur fire service, represent more open spaces and a more generally responsible ownership, the excess of the insurance rate on frame or stucco over brick will average 19 per cent. In all cases the same type of non-com-

bustible roof is assumed. To be sure, the insurance differences figure up to rather small amounts but in a term of years they grow to an appreciable sum. "Mony a mickle mak' a muckle."

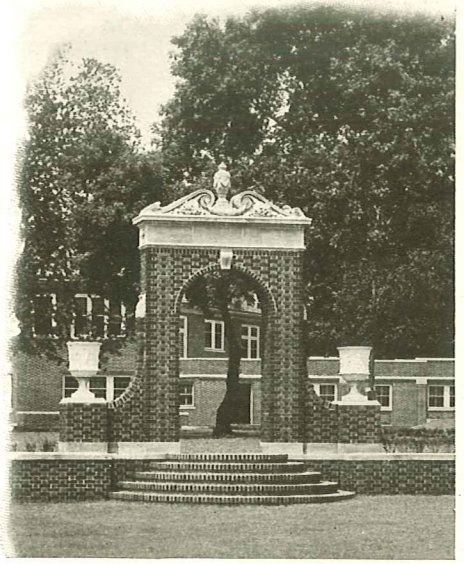
How strikingly small amounts rise to serious proportions may be seen in the last report of the National Board of Fire Underwriters issued in January, 1922, covering *American fire losses for the five years, 1916-1920 inclusive.* Each loss is comparatively small, but taken in the aggregate the losses mount to the staggering total of $1,672,722,677 as reported for the five years, or a yearly average of $334,544,535, which means a per capita tax of over $3.00 for every man, woman and child in the United States, a sum that we all share in paying. Two-thirds, at least, of this vast sum should be saved by better building, and put into roads and parks. As compared with European countries, where the annual per capita fire loss is much under a dollar, we should take to heart the lesson of using less combustible material in constructing our buildings. Certain it is that the more brick you use in building, the more you reduce the risk and the loss by fire.

Comfort and Health

Then there are the comfort and health of yourself and family which the brick house affords. There are two atmospheric influences that test the value of a wall as a protection against the winter cold and as a saver of fuel; they are wind pressure and temperature difference. Making doors and windows equally secure, the wind will seep in through a wall such as frame, as it cannot through the solid construction of brick. This will have in cold weather, when temperature differences are greatest, a decided effect on the heat conductivity of the two types of wall. A heating expert of wide experience connected with a large concern in Chicago, manufacturing heating specialties, uses the following coefficients of heat conductivity, in terms of B. T. U's per hour, per degree of temperature difference, per square foot of surface, as a practical base for calculation:

Brick wall, 12-inch, furred	25
Brick wall, 8-inch, furred	28
Frame wall	30

These differences, taken in connection with certain radiation constants, such as glass, ceilings, and cubic contents, common to both, indicate that from 3-9 per cent more coal is needed to keep the frame house of medium size at a comfortable,



Archway, Home of the Friendless, Peoria, Ill.
Hewitt & Emerson, Architects

Residence, Oak Park, Ill. Adapted from our Small House Plans No. 702
The observer is at once struck by the homelike and inviting charm of this little brick house on the corner

uniform temperature during the winter months than is needed in case of the brick house. The same principle would apply in keeping the heat out in the summer months. A comfortable, uniform temperature in the house, especially in winter, has a vital bearing on the health and welfare of the family, more particularly as it affects very young or delicate children and old people, or even the strong when indisposed.

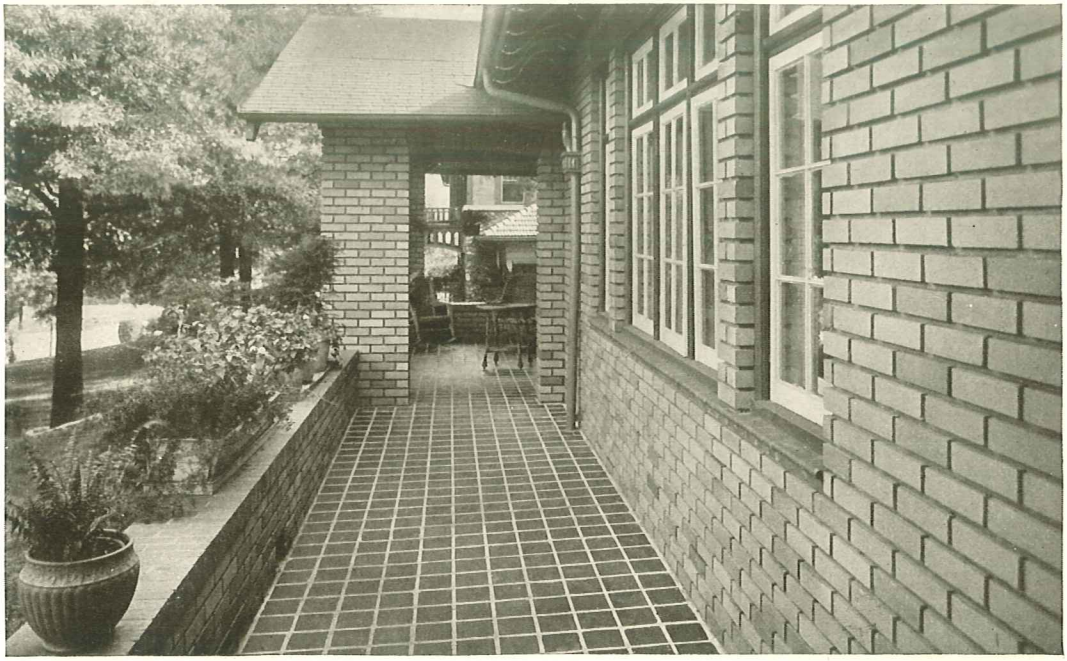
There is, however, a requirement of comfort and health not connected with the problem of heating, which the brick wall admirably meets. It offers no convenient hiding-place for broods of vermin that not only cause discomfort but threaten disease. To say nothing of the strain on the affections or the disgust at uncleanliness, these pests are apt to prove expensive in terms of the doctor's fees. The brick wall offers no harborage for vermin of any kind, nor can they bore or gnaw into it.

But, in passing, there is another important economic item to be considered, viz., the beauty of the brick wall which does not so much *save* as *make* money for you. That is, the substantial and attractive appearance of your face brick house makes the same appeal to everybody else as it did to you when you built it, in consequence of which you can, if you desire, borrow more money on it, or if you must, you can rent or sell to better advantage. Beauty has also a real economic value. When you sum up the economic advantages that grow out of the solid structural and artistic merits of the brick wall, you will find that it costs you much less in the long run than the cheaper types of construction.

IV. Sentimental Reasons

Finally there is brought into view a certain value in the face brick home that we can't put into figures. It is one of the imponderables, but it nevertheless has great weight with the normal man and woman. It is the personal satisfaction felt in the possession of a beautiful home which everybody admires. This exerts an unconscious influence in raising your sense of self-respect. You take a reasonable pride in your personal appearance which you feel you owe to yourself and to your associates. Why shouldn't you take even a greater pride in the artistic appearance of your home? It represents not only you but your family to your neighbors, and to the whole community. It is a sort of duty on your part to make your home attractive, to give it the distinction of style, of class, of beauty. You thus express yourself in a manner much to your own credit, and at the same time you add to the real values of the neighborhood and community of which you are an integral part. As we have just said, this will certainly make for economic value; why not add for your deeper personal satisfaction the sentimental value also, imponderable, but nevertheless real, —you will find it pays.

Well, then, in building a face brick home you get the structural values of permanence, fire-safety, comfort and health, and the artistic value of beauty, out of which follow a real economy and a genuine personal satisfaction.



Bungalow Porch, Birmingham, Ala. Warren & Knight, Architects

A cool and inviting spot of a summer afternoon is offered by this terraced porch of light toned brick

Home of the Friendless, Peoria, Ill. Hewitt & Emerson, Architects
For institutional buildings, face brick secure economy, safety, comfort, and architectural dignity

Comparative Costs

HOW a real economy results from building a face brick home has been repeatedly shown from actual figures obtained by face brick manufacturers, during the past ten or twelve years, from all parts of our country. All of these figures are the bids for actual construction by experienced contractors in their various communities. As prices have changed greatly during the period in question, the percentages of difference will prove to be the only instructive figures, and are calculated on the total costs of the houses. We have the bids for 1919 and 1922 in our files for reference, and are ready to show them to any interested persons. As frame construction is usually the cheapest, we shall take it as the basis of comparison, and give the percentages in excess over frame: for stucco on frame; brick veneer, or face brick on frame construction; face brick with hollow tile; and solid brick, or face brick with common brick. A moderate sized dwelling is used as a typical example and is the same in every respect except the exterior walls. First-class face brick are used and all solid walls are furred.

The figures for 1910-1919 represent from nine to nineteen bids in each case, on which the average is given. Different contractors in the same place

and different parts of the country sometimes show considerable divergence, but in view of the wide territory from which these bids have been gathered and the time covered, the averages may be taken as indicative of about the percentage of difference you would have to pay. It should be noted, in the case of the eight-inch solid brick wall and the brick on tile wall, that they are both four inches thicker than the frame and three inches thicker than the stucco wall. But, be that as it may, taking the eight-inch face brick wall in comparison with frame and stucco, you can readily calculate what you really save by paying a little more at the start for the more substantial

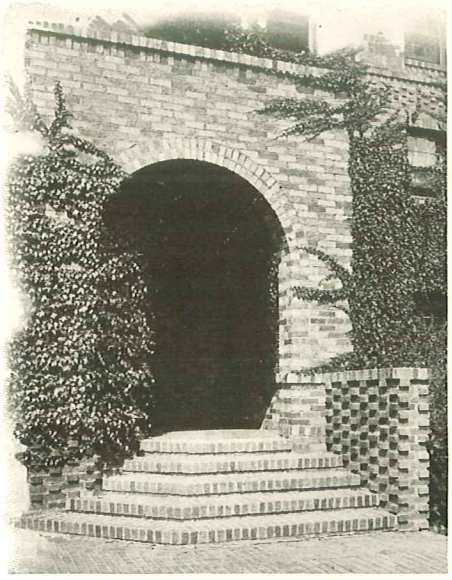
Table of Percentage Differences

Year	Frame	Stucco	Brick Veneer	Brick on Tile	Solid Brick 8" Wall
1910	0.0%	2.9%	6.9%	10.7%	9.1%
1913	0.0%	4.0%	5.9%		8.1%
1915	0.0%	1.6%	4.9%		6.9%
1919	0.0%	0.5%	4.4%	6.5%	6.1%
1922	0.0%	−0.2%	4.7%	6.2%	6.0%

construction. How steadily these percentages of difference hold is shown in the last line of figures in the table. To try out the question for the spring of 1922, in such a characteristic building center as Chicago, five bids were secured on House No. 627, of *Bungalows and Small House Plans*, from various parts of the city, with the averaged results as given in the table. It will be noted that the Chicago figures for 1922 differ by only tenths of one per cent from the figures for 1919 obtained in various parts of the country.

Reverting to the economies of the face brick house, you will find that your maintenance and depreciation items alone on the frame construction will, in a very few years, entirely wipe out the excess initial cost of the brick, to say nothing of all the other items that go to make your face brick home all the time an investment of a permanent and remunerative value.

Thus, a $7,000 frame house would mean, figuring excess cost at 6 per cent, a $7,420 face brick house. Depreciation at



Entrance, Fraternity House, Evanston, Ill.
Hornbostle & Hunt, Architects

2 per cent annually on the frame in five years would be $700; add to this a repainting bill of $250 and you have a total of $950. For the five years under consideration there would be no depreciation to be calculated on the brick house, but a repainting bill of about $85 for doors, windows, and outside trim would have to be charged up. This means that the difference of $865 between frame and brick upkeep and depreciation covers in five years more than twice the $420 excess initial cost of the brick. Even with a 10 per cent initial excess cost, you save money on the brick house in less than five years. To be penny wise and pound foolish in building your home looks like an inexcusable folly.

The probable explanation of diminishing percentages on brick construction, as shown in the table, is the tendency of lumber, to rise in price faster than the average commodity index. Lumber is one of those staples of such wide and varied use that it is well to consider seriously its conservation, both in guarding its supply and in maintaining a reasonable price. We are all interested, for everybody in one way or another has use for lumber.

Residence, Atlanta, Ga. "Home of Beauty" House No. 102
It would be difficult to improve the design or the fine brickwork in this English type

Need of Saving Lumber

IN the economic administration of any public domain, there is no more important factor than the maintenance of a proper ratio between timber and arable lands. The bitter lesson of history teaches that when this ratio has been neglected by irresponsible deforestation, the productive capacity of the territory so denuded has been sadly depleted.

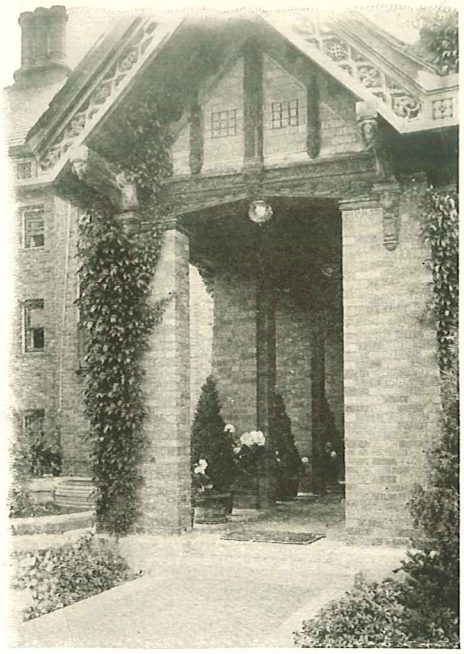
As intelligent and advanced as we Americans claim ourselves to be, we have already done much to discredit this claim, so far as our irresponsible destruction of timber land goes. Fortunately, however, we are becoming aware of our folly, and are seriously casting about for measures to regain our self-respect, by wisely conserving our invaluable resources.

The Chief Forester's Report

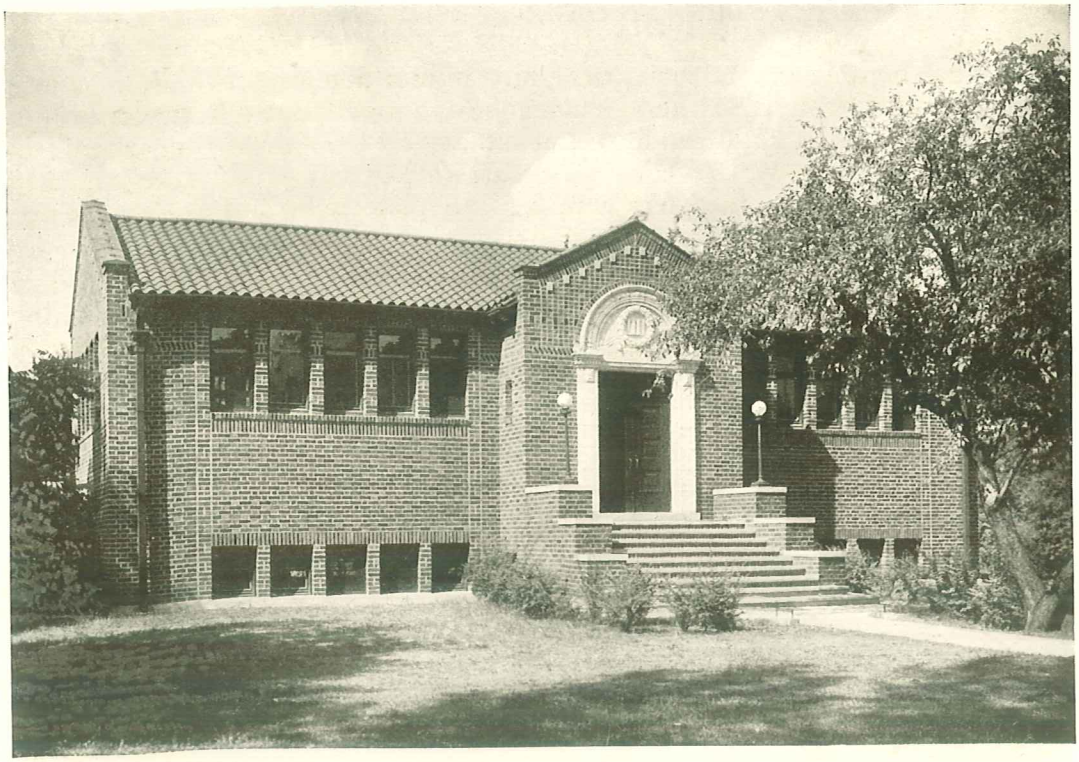
In his annual report to the Secretary of Agriculture, last December (1921), Chief Forester, Colonel William B. Greeley, vividly sets forth the present situation and urges prompt and efficient federal co-operation in protecting the forests and reclaiming the cut-over lands.

He says: "The outstanding points in our present serious situation as to timber supply are the disappearance of three-fifths of the virgin forests of the country, a present drain upon our remaining forests over four times their yearly production of wood, and the accumulation of enormous areas of denuded and idle forest lands." He points out the necessity of making up the present deficit between our annual drain of 26 billion cubic feet and a growth of only 6 billion cubic feet. He goes on to say that "of the 460 million acres of forest lands in the United States, 70 per cent has been logged, and 17½ per cent, or 81 million acres, is burnt over and idle. A serious feature of the situation is that 61 per cent of the standing timber is west of the Rocky Mountains, while 80 per cent of the population is east of these mountains, so that two-thirds of the timber consumers now pay as much for freight alone on their lumber supplies as they formerly paid altogether."

So urgent is the need that Colonel Greeley strongly recommends vigorous federal action, and approves the Snell Bill,



Entrance Porch, Lake Forest, Ill.
Perkins, Fellows & Hamilton, Architects



Public Library, Glen Ellyn, Ill. Geo. Awsumb, Architect
It would be difficult to produce as pleasing a wall surface in any other material than face brick

now before Congress, which aims: (1) to furnish fire protection to the forest lands of the country; (2) to reforest old cut-over lands; and (3) to reforest the three to four million acres logged every year.

Aside from the depletion of our lumber supply, the reckless denuding of timber lands has a very serious effect on the rainfall and its distribution. From every point of view, we are all deeply concerned in having forest and arable lands maintained in the proper economic ratio.

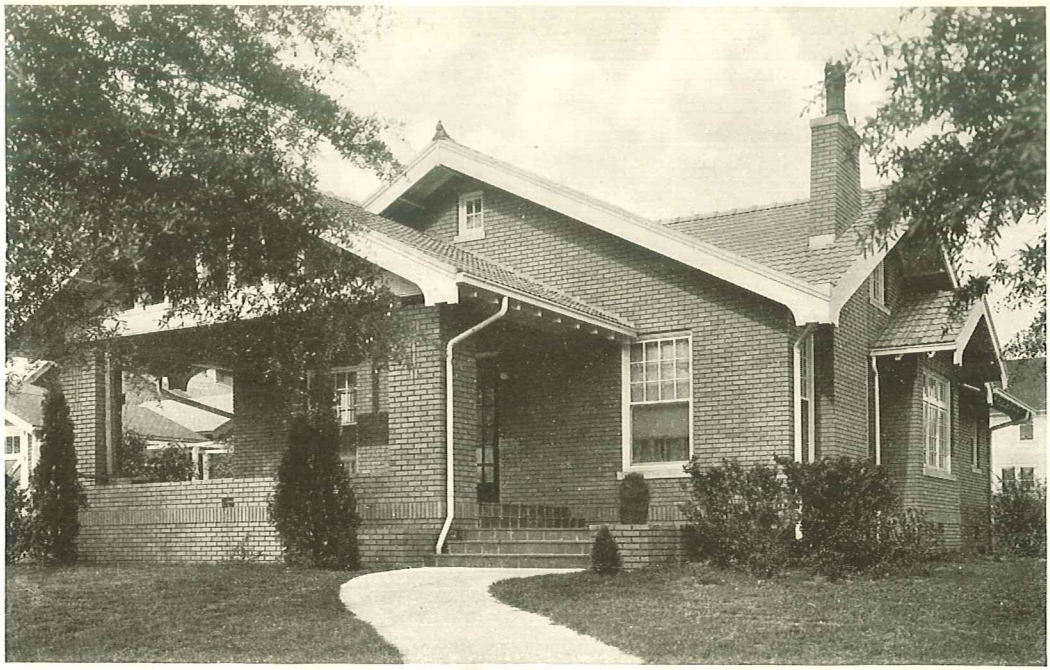
When you consider that, even in homes built of incombustible materials, such as concrete, stone, or brick, lumber bears from 20 to 25 per cent of the total cost of the building, and that now over 85 per cent of the houses in the United States are built entirely of wood, you can easily understand why you hear so much said about the disappearance of our forests and the advancing prices of lumber.

Most Direct Way to Save Lumber

But whatever the government may, in time, be brought to do in conserving our lumber supply, there is a simple and direct means to that end in the hands of every house builder, and that is to confine lumber strictly to its

legitimate uses, or at any rate, not use it where more fitting materials are at hand. Thus, lumber should not be used in the exterior walls of a house where it is exposed to the vicissitudes of the weather or to the trial of fire, especially when building material such as brick, which is nearly as cheap and, considering its durability and fire-safety, far more economical, is everywhere in evidence. Lumber has its very legitimate and varied uses, but among them is not outside work where wind and rain and frost and fire search out its weaknesses. In view of its very nature and the great variety of its proper uses, it should as seldom as possible displace the exterior masonry wall, which in stone, tile, or brick makes the most secure and enduring structure. If the 85 per cent or more of building done in this country, now of frame, were put into brick, or like durable and fire-resistive materials, it would result in a great economic national gain, people would have better and more substantial houses, and the lumber which everybody needs would be conserved for the legitimate uses to which it is admirably adapted.

Besides, the use of brick in no way depletes the national resources. The clay from the cellar, we might say, in the form of enduring and beautiful brick will build the walls of the house. But when you cut down a fine tree, however desirable its products in the form of pulp, fuel, or lumber may be, you nevertheless destroy one of the most beautiful and, *in situ*, useful elements of nature which it will take long years to replace.



Bungalow, Ensley Highlands, Ala. D. O. Whilldin, Architect
A charming southern bungalow done in a lovely tan colored face brick of rich varied Sienna tone

Residence, Radnor, Pa. Howard Shaw, Architect

The buffish gray field variegated by darker shades gives a wall of great beauty

The Extravagance of Cheapness

WHEN you sum the whole matter up, we believe you will find that for varied beauty and strength, taken from every point of view, structural, artistic, economical, and sentimental, no other material can make the meritorious claims of face brick for building your home or any other structure you plan.

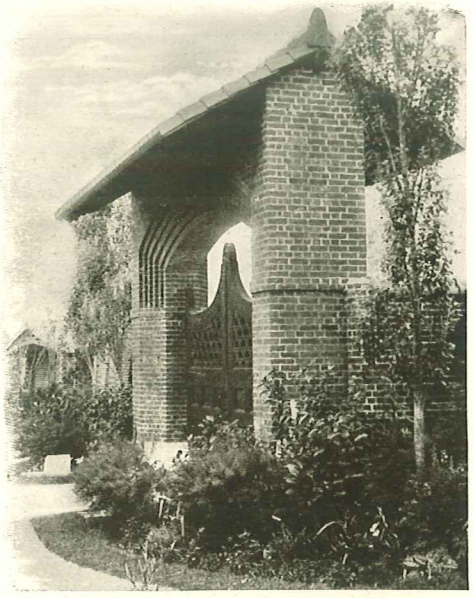
In a manner of speaking, some people like one thing and some like another. Tastes differ. But when it comes to paying out money, taste often has to bow to the pocket-book. I would like silk but I can only afford cotton. Suppose, however, that taste and the cash-drawer may be brought into line; suppose you could have beauty and economy all in one package, you would have rubbed the magic lamp.

Error of Initial Cost

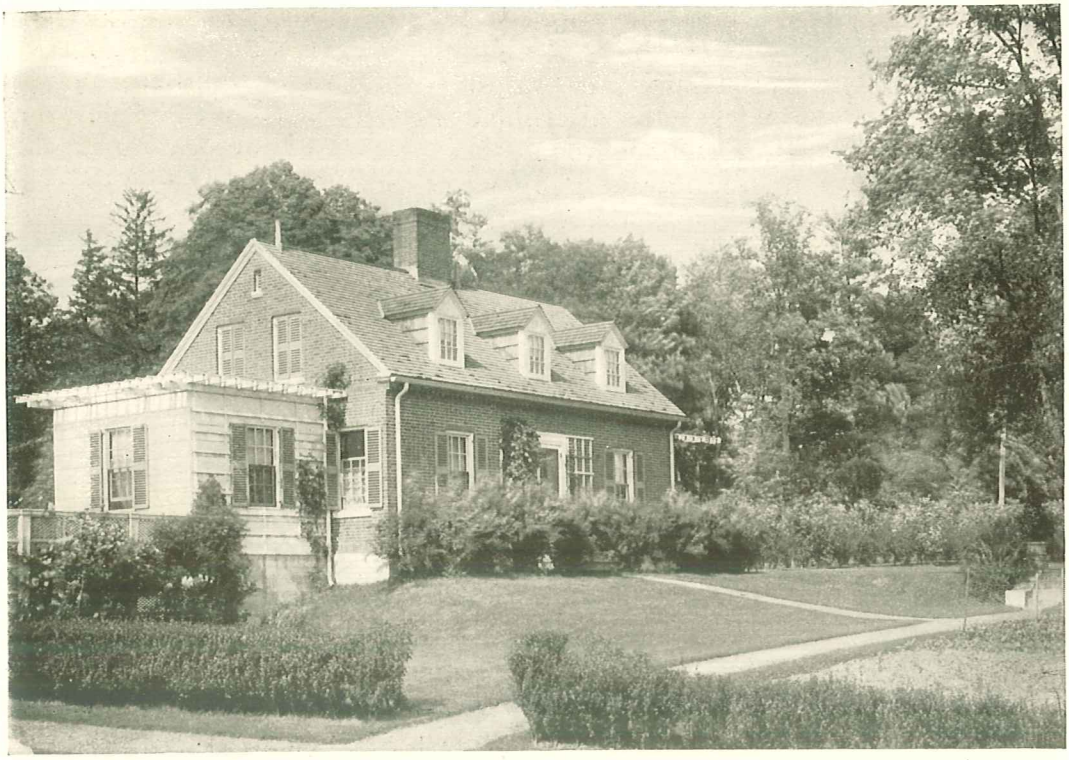
Well, that is what you can do when you come to consider the building of a home, unless you are misled by the extravagant error of initial cost. Wouldn't it be cheaper to pay $5.00 instead of $4.00 for a pair of shoes, if they wore twice as long and, from the start, fit you better, had more style, and gave you greater satisfaction in every way? The cheaper pair would really be dear, and you would be more extravagant in buying them than in buying the higher priced article. Cheap things are always dear in the long run. Poor people, whose restricted means compel them to buy cheap things, really pay out proportionately more for their supplies than those who can make the initial outlay for dearer articles.

Of course, you can buy just style, irrespective of quality, or you can buy quality regardless of style, but the ideal is to combine the two, and get both style and quality at the same time. You certainly would take advantage of the combination in buying the shoes, if the better pair, instead of costing $5.00 or 25 per cent, that is, $1.00 more, cost only 5 to 10 per cent, or from 20 to 40 cents more.

And you can combine the two, quality and style, strength and beauty, so that your means and your taste may agree, when you consider building a home, as we have been trying to show you.



Garden Entrance, Marion, Mass.
Fehmer & Page, Architects



Gardener's Cottage, Hartford, Conn. Charles A. Platt, Architect
A great many people, we fancy, would be satisfied to settle here permanently in this gem of a brick cottage

No expenditure is so important as that which you make for a home. You are to live in it for a period of years, you will see it every day, and every day your neighbors will see it. It must have the quality of strength and durability, that is, it must *wear;* and it must have *style.* The quality you want for the comfort, safety, and welfare of yourself and family; the style you want to satisfy your own and their taste. Both, you want for your neighbors and even passing strangers to judge you by. The manner of the house indicates the manner of the man within. It indicates, as it were, your standing in the community; and certainly, if circumstances lead you to move elsewhere, you want in your house, as a commercial asset, both strength and beauty, for these are sure to get you a better return in rent or sale. That is, from every point of view, an attractive face brick home will prove to be a wise investment.

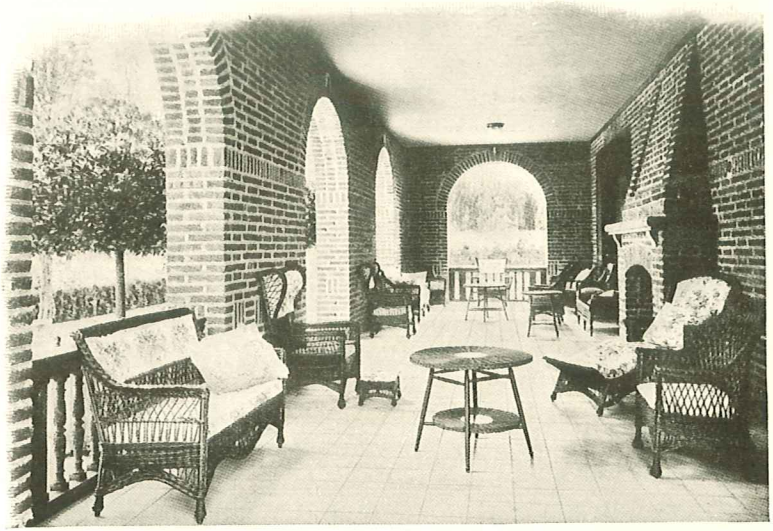
Conclusion of the Whole Matter

In conclusion, we beg to repeat that there is no other building material that will combine so many merits of quality and style, strength and beauty, in your home as face brick. Durable as the eternal hills, it is proof against

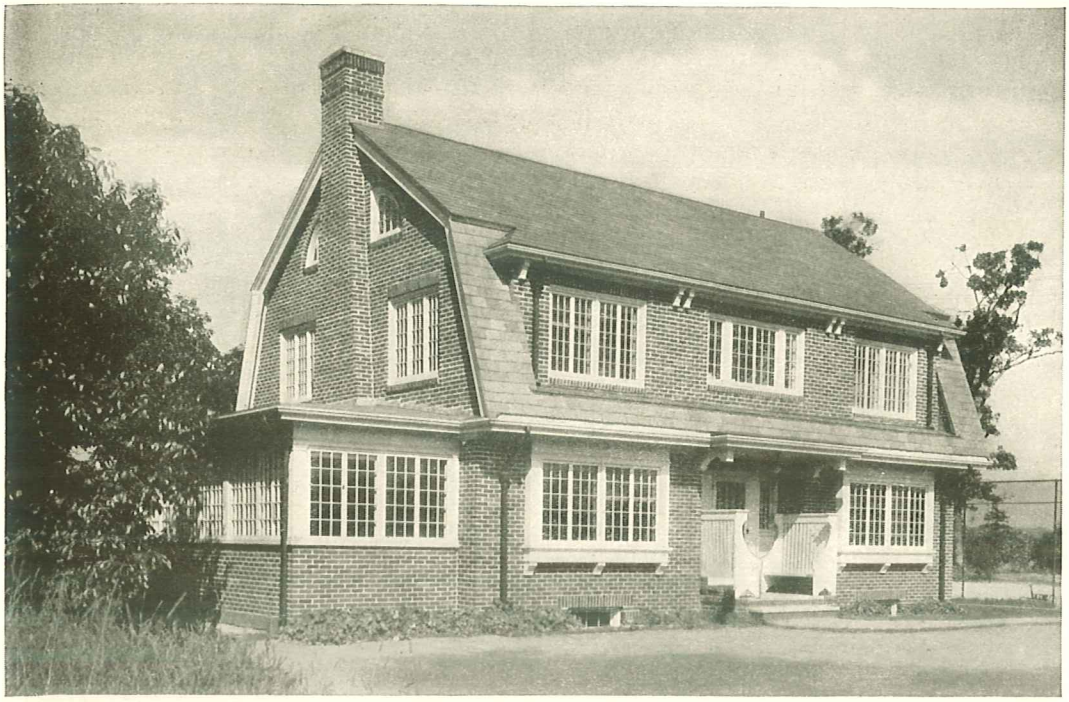
the corrosion of the seasons and the ravages of fire, thus reducing the cost of maintenance and depreciation to a minimum; and, beautiful in its varied colors and textures as the finest fabrics, it offers to the eye an artistic charm that meets the most refined and discriminating taste. Perhaps you frankly like the painted wood, the monochrome stucco, the varied stone or marble—a good house, if you will, may be built out of any of these materials—but you will find in them some weakness, danger, or excessive cost that brick avoids, while offering a variety of merits none of them combine.

Your brick house costs you from a twentieth to a tenth more than the less substantial structures, but it lasts more than twice as long and remains in a better condition. The same brick house costs far less than the heavier and more pretentious structures, and yet lasts as long, rivals them in substantial appearance and dignity, and excels them in the range of artistic effects. Brick has, as no other building material, unique characteristics of plasticity. The size and form of brick not only offer pleasing proportions to the eye but easily lend themselves to the skill of the mason craftsman; and either their uniformity or variety of texture and color affords the architect the utmost possibilities in designing the wall surface.

Brick has equal value for the poor man's cottage or the rich man's palace, for the cobbler's shop or the city hall, the wayside chapel or the metropolitan temple, and yet combines that strength and beauty which meet the requirements of both good taste and a thrifty purse. Other materials have their merits and make their appeal, but looking at the building problem on all sides, no other material approaches brick in the structural and artistic values it offers—permanence, comfort, safety from fire, economy, and beauty. You owe it to yourself to look into this matter thoroughly. You should talk the matter over with some representative of our Association. It will cost you nothing and you are sure to get most valuable and practical suggestions.



Porch of Residence, Oyster Bay, L. I. Carrere & Hastings, Architects
Strength and grace delightfully combine here with suggestions of comfort and opulence



Residence, Newtonville, Mass. George H. Sidebottom, Architect
The beauty of the brickwork responds perfectly to this fine Dutch Colonial type

But more than mere suggestions, we have a few interesting offers to make, if you are thinking about building a home. In the fall of 1919 we conducted, through the *Architectural Forum*, of Boston, a country-wide competition for a small face brick house. As the purpose was to secure a great variety of types that would have real architectural worth, and made available for smaller communities, where the services of an architect are not always to be had, the Committee on Competitions of the American Institute of Architects approved the plan as being educational. Hundreds of plans from nearly every state in the Union, and some from Canada, were sent in. A committee of five leading architects, members of the Institute, acted as judges, and selected fifty of the best plans, including four prizes and six mentions.

A Valuable Book for Fifty Cents

We have put these plans into a beautiful booklet, which contains in addition an instructive paper on the entire subject of building the house by Mr. Aymar Embury II., a New York architect who has been especially successful in planning the home. The perspectives and floor plans of the houses are given, and if you find what meets your requirements, we are ready to furnish you full working drawings, specifications, and quantity survey of materials at a very nominal fee.

The booklet is called *The Home of Beauty* and will be sent you for fifty cents (you may use two-cent stamps). We are sure you will find the suggestions in these plans, coming as they do from the experienced architectural designers of the country, well worth your consideration. You thus get for fifty cents a very valuable book giving a review of what trained experts on architecture have to present on planning a beautiful home.

Our book entitled, *A Manual of Face Brick Construction*, may also prove to be of great interest and of real value to you. While meant especially for the contracting builder, the book is written in simple, untechnical language, which the lay reader can easily understand, so that it may be very useful to you in showing just how your brick house ought to be built. It is very profusely illustrated with half-tones and pen drawings, showing various types of brick walls and how they are constructed from cellar to garret. The best and safest methods of building chimneys and fireplaces are shown. Bond and mortar joints are fully treated, as well as special ornamental uses of face brick, in porches, pergolas, garden walls, and the like. Thirty small house designs in color, by way of examples, useful tables for estimating quantities of material, a glossary of brick building terms, and a complete index are also included in this useful volume. This complete text-book on

Residence, Indianapolis, Ind. Jose-Balz Co., Architects
The permanence, solid comfort, and beauty of this house are expressed in the splendid brick walls

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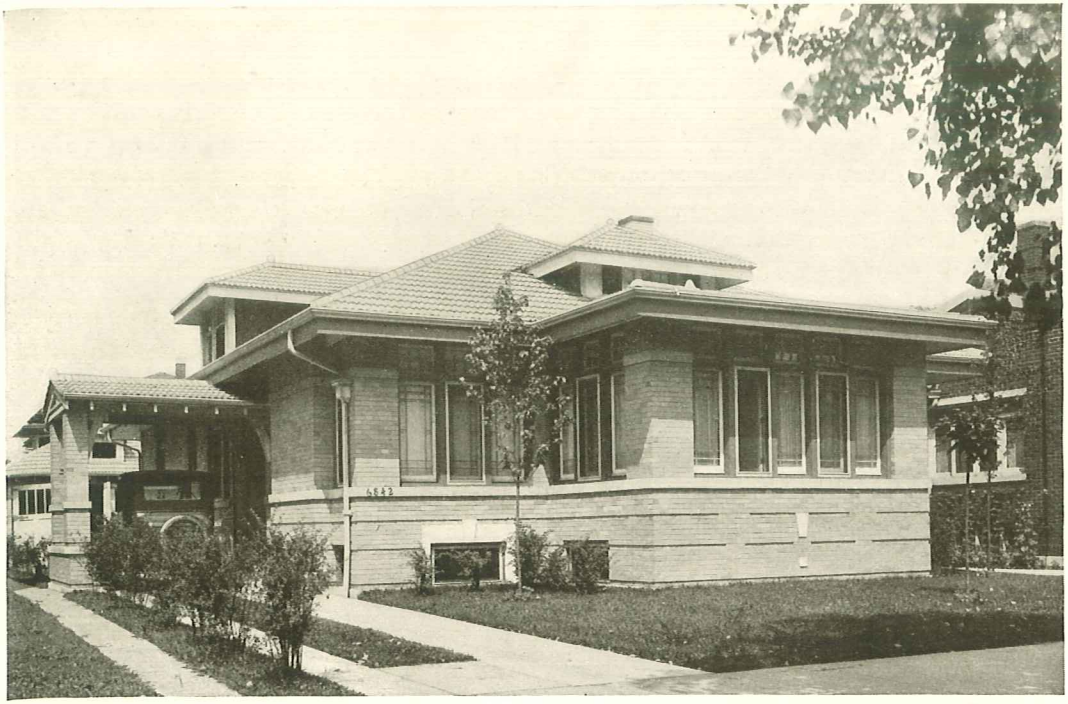
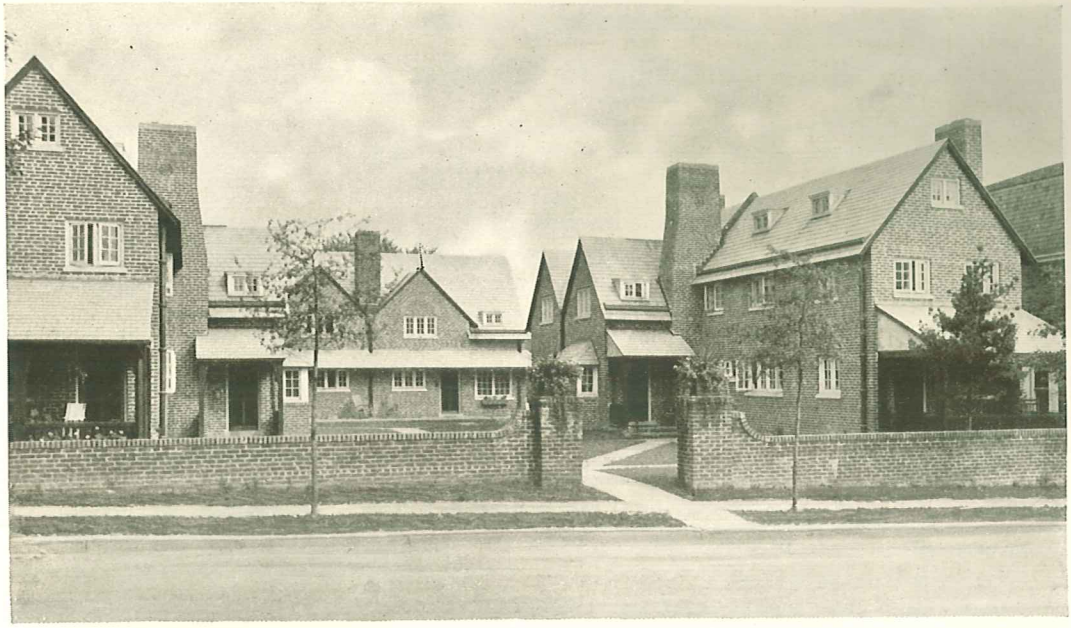
Our *Face Brick Bungalows and Small House Plans*, issued last year, have met with instant success. In nine months 43,500 copies were sold. The first two months of 1922 over 20,000 copies were called for. There are 96 plans in all, each one reversible with a different perspective, thus giving you four choices. These plans are grouped in four sets. The first contains 14 designs of 3- to 4-room houses; the second, 30 designs of 5-room houses; the third, 30 designs of 6-room houses; and the fourth, 22 designs of 7-to 8-room houses. Each booklet costs 25 cents. In ordering, please indicate on the enclosed card which set or sets you want. These booklets will give you many valuable suggestions. If, on examination, you do not like any of our plan booklets, you may return them within ten days, and we will gladly refund the money.

In any case, plan to build now, or begin your home savings account at the bank or building and loan association. A home is, by all odds, the most substantial asset you can possibly have for yourself and family, both from



Bungalow, Chicago, Ill. William P. Whitney, Architect
The light colored brick in this attractive bungalow produce a bright and cheerful effect



Community Group, Philadelphia. Duhring, Okie & Ziegler, Architects
A charming architectural effect is secured both in the design and grouping of these small brick houses

a sentimental and a practical point of view. In planning for your home, always make your motto: *Do it now.* Procrastination is the thief, not only of time, but of your future welfare. Furthermore, do yourself and family justice by giving distinction and character to your house. As the cost of the face brick is at most only a small part of the entire cost of the house, *buy the best brick you can.* Demand quality and service such as our members can furnish you. It will pay.

We welcome inquiries about building in brick, and shall be glad to give you any helpful suggestions we can on the planning of your home. Inquiries about prices or kinds of brick should be sent to any of our members nearest you. Their names will be found on the following pages.

The enclosed card is for your convenience, either as a postal acknowledging the receipt of this booklet or indicating your plans; or as an order blank for any of our literature you may wish. When you write please address

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130 North Wells Street
Chicago, Illinois

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